

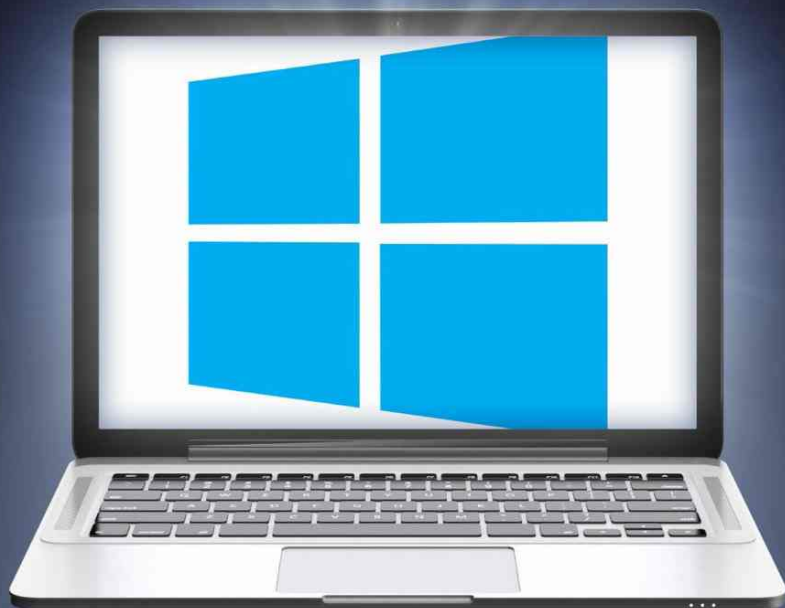
INSIDE: THE TWO BEST ULTRABOOKS

PCWorld

MARCH 2016

YOU WILL UPGRADE TO **WINDOWS 10**

— Inside Microsoft's strong-arm upgrade tactics —



I was one of the **1** in **5**
Children in America who
STRUGGLE WITH HUNGER
join me and help put an
End to childhood hunger.

Viola Davis



**HUNGER IS
ALL OF US**

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THE
SAFeway
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The *Hunger Is* campaign is a collaboration between The Safeway Foundation and the Entertainment Industry Foundation to raise awareness and improve the health of hungry children.

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The Safeway Foundation and the Entertainment Industry Foundation are 501(c)(3) tax-exempt organizations. Photo by: Nigel Parry

MARCH 2016

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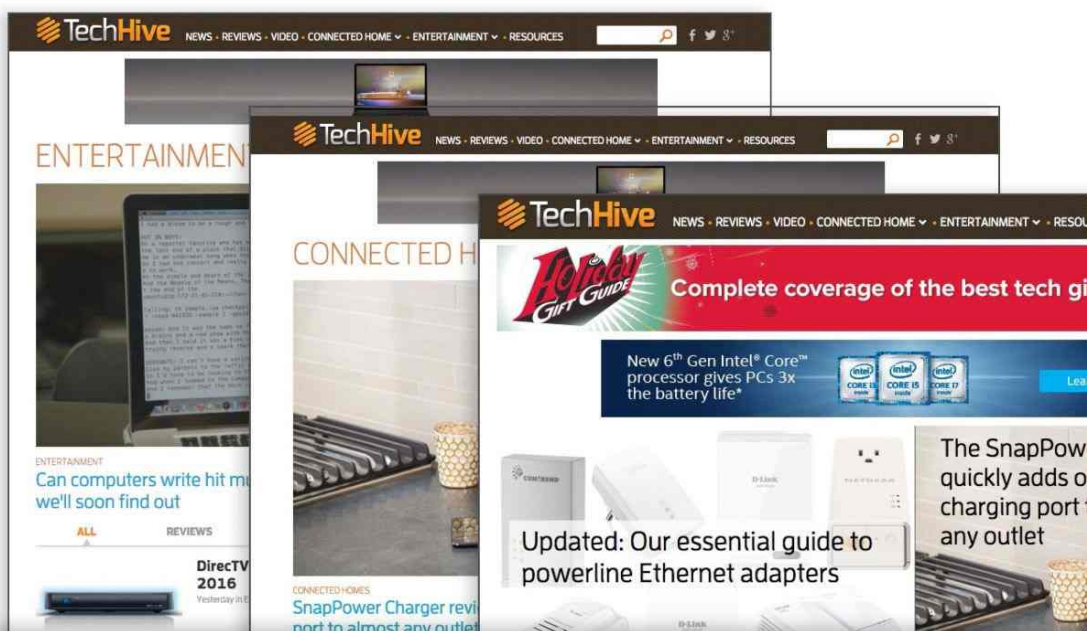
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Last call for Windows 7: Microsoft's transitional list includes over 100 Skylake PCs

BY BRAD CHACOS

A WINDOWS 7 PC running Skylake: If this is your dream, you'll have over 100 systems to choose from in the list of PCs (go.pcworld.com/win7skylake) from Dell, HP, Lenovo, and NEC that Microsoft recently published.

It's all part of a plan (go.pcworld.com/upgradewin10) Microsoft outlined to push customers to Windows 10 through a list of modern PCs that can be configured with either Windows 7 or Windows 8.1.

But there's a catch: OS support for the new systems runs out on July 17, 2017, when the systems must be migrated over to Windows 10.

Meanwhile, customers who buy PCs using last-generation silicon, such as Intel's Broadwell chips, will receive a longer leash: support until 2020 for Windows 7 and 2023 for Windows 8.1. This staggered support plan has irritated a vocal customer segment, concerned that Microsoft is strong-arming them (go.pcworld.com/mustupgrade) into shifting to Windows 10.

You can thank
the corporate
world for this
last chance to
get Windows 7
or 8.1 on brand-
new Skylake
hardware.

Dell's page tacitly acknowledges this, noting that "Microsoft and Intel are limiting the support life of the Skylake Chipset on Windows 7 and 8.1."

Why this matters: You can thank the corporate world for this last chance to get Windows 7 or 8.1 on brand-new Skylake hardware. Microsoft and Intel had to support enterprises that wanted to buy new PCs but needed more time to move their users to Windows 10. But the price for this gentler treatment is a new PC, and the 2017 deadline is strict.

A gentle, but firm nudge toward Windows 10


Microsoft is very specific about the limitations of this plan—what will be supported, and until when. "For each of the supported systems listed on the OEM pages," Microsoft explains, "the OEM has committed to additional testing, regular validation of Windows Updates, and publishing drivers and firmware for Windows 10 on Windows Update which will help unlock the security and power management benefits of Windows 10 once the systems are upgraded." Note Microsoft's

strong upgrade hint at the end.

Most of the models listed are aimed at businesses, who may be conservatively approaching the Windows 10 transition because they run line-of-business apps that may break on Microsoft's latest OS. (Analysts have told *PCWorld* that enterprises are looking favorably upon Windows 10, but the upgrade process takes time.)

Consumers will have a few choices, too. The approved list also includes Dell's Inspiron notebooks for home and small business, as well as four Alienware gaming PCs and three of Dell's XPS lineup—indicative that consumers, too, want a known, stable OS for gaming.

Neither HP nor Lenovo makes any provisions for Microsoft's decision to terminate support in 18 months. But Dell's page notes that the company will "continue to provide 'best effort' support for Skylake systems with Win 7/8.1 through [Dell's] ProSupport service."

Dell didn't respond to our requests for clarification by press time on what this actually means. But for many, the issue boils down to this: Microsoft will end its support for Broadwell PCs on Windows 7 in 2020. But support for Windows 7 PCs running on top of Skylake will end "early," in 2017—and that, to many, is just unfair. Dell may try to soften that unexpectedly hard landing. 

First 'Oculus Ready' PCs and bundles revealed, but you may want to BYO Rift rig

BY BRAD CHACOS

THE COMPUTING INDUSTRY'S betting big on the coming virtual reality revolution, but pushing headsets like the Oculus Rift and HTC Vive out to the masses isn't as easy as you may think. Running them requires some pretty beefy PC rigs, and diving into nitty-gritty CPU and GPU specs—sadly— isn't most people's forte. That's where VR certification programs that guarantee



VR compatibility come into play.

Oculus revealed the first batch of “Oculus Ready” PCs from Asus, Alienware, and Dell, complete with discounts if you buy them bundled with the Rift.

The bundles start at \$1,500—the exact price Oculus CEO Brendan Iribe suggested months ago (go.pcworld.com/oculuscost), not-so-coincidentally—and only go up from there, topping out at a whopping \$3,150 for a blinged-out Alienware Area 51 (go.pcworld.com/alienwarea51) with an Intel Core i7-5820K, a GeForce GTX 980, 16GB of RAM, and more. Here are the details for every announced Oculus Ready PC, which recently went up for preorder at Best Buy, Amazon, and the Microsoft Store:

Asus G11CD: Intel Core i5-6400, Nvidia GeForce GTX 970, 8GB of DDR4 RAM, 1TB hard drive—\$1,049, or \$949 bundled with the Rift headset

Asus ROG G20CB (model 1): Intel Core i5-6400, GTX 970, 16GB of DDR4 RAM, 512GB SSD—\$1,449, or \$1,349 bundled with the Rift headset

Asus ROG G20CB (model 2): Intel Core i7-6700, GTX 980, 16GB of DDR4 RAM, 256GB SSD, 1TB hard drive—\$1,699, or \$1,599 bundled with the Rift headset

Alienware Area 51: Intel Core i7-5820K, GTX 980, 16GB of DDR4



The first batch
of Oculus
Ready PCs.

RAM, 128GB SSD, 2TB hard drive—\$2,549

Alienware X51 R3 (model 1): Intel Core i5-6400, GeForce GTX 970, 8GB of DDR4 RAM, 1TB hard drive—\$1,199, or \$999 bundled with the Rift headset

Alienware X51 R3 (model 2): Intel Core i5-6400, GeForce GTX 980, 16GB of DDR4 RAM, 256GB SSD—\$1,499

Dell XPS 8900 SE: Intel Core i5-6400, GTX 970, 8GB of DDR4 RAM, 1TB hard drive—\$1,199, or \$999 bundled with the Rift headset

The story behind the story: A couple of interesting tidbits immediately leap out when perusing the hardware inside the first batch of Oculus Ready PCs, but the most glaring is the utter lack of AMD's Radeon graphics cards. That's startling, as AMD's been a major VR proponent and Oculus supporter. Oculus' minimum required PC specs (go.pcworld.com/oculuspcsspecs) definitely include Radeon recommendations, and the Vive-optimized HP Envy Phoenix (go.pcworld.com/hpenvy) offers Radeon cards as standard options.

You can do (slightly) better

Speaking of the minimum required specs, the majority of these Oculus Ready PCs stick to them: A GTX 970 or AMD Radeon R9 390, an Intel Core i5-6400 (the Skylake equivalent of the older, Haswell-based Intel i5-4590 officially listed as the min spec), and 8GB of RAM. Prices for the builds vary, however, thanks to changing RAM and storage offerings.

Regardless, people who aren't afraid of rolling up their sleeves and building a PC (go.pcworld.com/buildforoculus) can cobble together an Oculus-ready PC of their own for a bit less money, even after you factor in the bundle pricing available when you buy some of these PCs with a Rift—though it won't save you as much as you might expect.

It's worth it, though, and I'll explain why.

Grabbing a Core i5-6400 (\$190), 8GB of DDR4 RAM (\$60), a 1TB hard drive (\$50), a decent case (\$100), and a decent motherboard (\$100) will set you back about \$500. The only component left after that is a



The Oculus Rift headset,
being used with made-for-
VR Oculus Touch controllers.

graphics card: Various GTX 970 models can be found for as little as \$300, while Radeon R9 390 models—which tends to offer higher frame rates (go.pcworld.com/hiframeratecard) than the GTX 970—frequently dip as low as \$275. Even if you opt for a pricier GTX 970, that's just \$800. Add another \$100 for a copy of Windows and you wind up at \$900. That's \$50 to \$100 less than the Oculus Ready bundles, and \$150 or more less than the same PCs when you aren't buying a bundle.

Drop another \$600 for the Rift headset itself and you're left at \$1,500, or the same price as the cheapest Oculus Ready PC bundle, with the Asus G11CD. Yup, that bundle discount can make a difference. But the other PCs with similar specs start in bundles costing \$1,600, according to Best Buy's website, and you save even more money if you're looking to replicate the more powerful Oculus Ready PCs.

It's definitely worth going through the hassle of building your own PC to put that extra \$100 or more toward a beefier graphics card if

you feel capable of pulling off a DIY build.

The minimum recommended graphics card for the Oculus Rift may be the GTX 970/Radeon 390, but in order to play a VR experience that doesn't make you feel ill, games need to hit a smooth 90 frames per second. Sure, the min-spec graphics cards might be able to hit 90 fps at the Rift's 2160x1200 (1080x1200 per eye) resolution in lighter games like Lucky's Tale (which comes bundled with the headset), but there's little chance of those cards nailing a

In other words, the more money you can toss at your graphics card for VR, the better.

consistent 90 fps in more strenuous games like space combat game EVE Valkyrie (which also comes bundled with Rift preorders). Elite: Dangerous, which is very similar to EVE, already said you'll need a \$500 GTX 980 (go.pcworld.com/500GTX980) at minimum for VR—higher than the Oculus Rift's humble requirements.

In other words, the more money you can toss at your graphics card for VR, the better. Building your own Oculus-ready rig lets you do that, though it's wonderful to see these easy prebuilt bundles available for people who want things to work without all the DIY hassle. 🔌



Intel shuts down the cheap overclocking party by closing Skylake loophole

BY GORDON MAH UNG

THE CHEAP OVERCLOCKING party is over. An upcoming microcode update from Intel will close the door on a loophole that let users goose Skylake CPUs that weren't meant to be overclocked.

The company recently confirmed to *PCWorld* that an update would “align” the CPUs in question.

“Intel regularly issues updates for our processors which our partners voluntarily incorporate into their BIOS,” an Intel spokesman said. “The latest update provided to partners includes, among other things, code that aligns with the position that we do not recommend overclocking processors that have not been designed to do so. Additionally, Intel does not warranty the operation of the processor beyond its specifications.”

That's basically a kinder way of saying: “You shouldn't be overclocking these CPUs, so stop it.”

Why this matters: Since December (go.pcworld.com/overclockskylake), overclockers have been able to run lower-priced CPUs above their rated speeds by cranking up the Bclock setting on a chip. Intel normally charges more for such capability, so budget-minded overclockers were overjoyed. That party, though, is about to end.

It was great fun, but it was just one of those things

Such a move by Intel shouldn't come as a shocker, nor is it unprecedented. The company previously shut the door on overclocking with cheaper H-series and B-series chipsets, which pushed people to pricier Z-series chipset motherboards.

Overclocking of Intel chips has always been a gray area. Even on K chips that feature overclocking, the official Intel warranty doesn't cover it. And yes, even if you buy Intel's replacement policy to cover nuking an overclocked chip, the company still doesn't encourage you



Want to overclock?

You'll need to pay for a K series chip again.

to overclock. Just read Intel's FAQ ([click.intel.com/tuningplan/faq](https://www.intel.com/tuningplan/faq)) to see for yourself.

I imagine there's a fear within Intel that overclocking cheaper chips could lead to abuse of Intel's warranties. Most honorable overclockers, however, know the risks and accept that they could eat the cost of a nuked chip.

How to prevent Intel's Bclock Blocking

Intel's microcode update apparently hasn't been issued yet, but it'll likely be given out to motherboard vendors who will integrate the update into BIOS updates. That probably means those who are using the exploit now could keep rolling it—if they never update the BIOS.

However, most new motherboards would likely incorporate the update, so buying a cheap chip with the intent to overclock it on a new motherboard isn't guaranteed. 🔌

Twitter begins rolling out its algorithmic timeline, but it's opt-in—for now

BY JARED NEWMAN



AFTER MONTHS OF testing, rumors, and general user anxiety, Twitter is now employing an algorithm that displays some Tweets out of chronological order.

The feature, known as “Show me the best Tweets first” (go.pcworld.com/showbesttweets), gathers up older tweets that Twitter thinks you might have liked seeing, based on “engagement and other factors,” and pushes them to the top of the Timeline. Below this cluster of Tweets, users will still see their Timelines in reverse chronological order, and refreshing the Timeline will instantly make the algorithmic Tweets disappear. On some level, it’s a prioritized version of the “While you were away” (go.pcworld.com/awaytweets) feature that Twitter introduced a year ago.

Twitter has been testing the algorithmic Timeline (go.pcworld.com/algorithmictime) since December, and has been talking about it for much longer (go.pcworld.com/newtwittertime). In a blog post, the company says that “people who use this new feature tend to Retweet

and Tweet more, creating more live commentary and conversations, which is great for everyone.”

Still, the notion of replacing chronology with algorithms has touched a nerve among Twitter users, who’ve long feared that the social network might dilute its most unique properties and effectively become just another Facebook (go.pcworld.com/twitterfb). When rumors of the algorithm’s rollout popped up recently, #RIPTwitter (go.pcworld.com/riptwitter) became a worldwide trending topic. This prompted Twitter CEO Jack Dorsey to promise (go.pcworld.com/dorseylistening) that the company was listening, and that it wouldn’t be introducing any drastic changes to the chronological timeline.

To that end, Twitter is rolling out its algorithm as an opt-in feature for now. Users can find it by heading to Settings on iOS, Android, or the web, looking for a new Timeline section, and enabling “Show me the best Tweets first.”

But in the coming weeks, after gathering more feedback from users, Twitter says it will turn on the algorithmic Timeline by default. At that point, users will have the option to disable it.

Why this matters: For many users, chronological order is one of Twitter’s defining features. While it does increase the odds of missing something important, it also gives users the ultimate say over what they want to see. The new algorithmic feature is Twitter’s attempt to strike a balance between these two interests, in a way that appeals to both seasoned users and newcomers. But the fear is that it could be just the beginning of bigger changes down the road. 🔌

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CONSUMER WATCH



Microsoft recalls Surface Pro power cords due to overheating fears

Microsoft announces a voluntary recall for the AC powercords for Surface Pro, Pro 2, and Pro 3 tablets.

BY IAN PAUL

THE SURFACE PRO 4 may reign supreme but news about the original Surface Pro and its descendants is heating up. Microsoft recently announced a voluntary recall for the AC power cords sold with the Surface Pro, Surface Pro 2, and Surface Pro 3.

The cords can apparently overheat if they are “wound too tightly, twisted, or pinched for an extended period of time,” a Microsoft spokesperson confirmed to ZDNet.

A Microsoft spokesperson confirmed to ZDNet that in the U.S. the recall would only be for tablets sold before March 2015. The Surface Pro 4 was released in October and is not affected by the recall.

It’s not clear how many people are affected by the recall. Microsoft claims it is only a “very small proportion” of Surface Pro buyers. The company’s website outlines the specifics of the recall, such as information regarding whether you qualify for it and how long it could take to receive a new power cord. Microsoft did not say in its statement nor does it mention on the webpage about the recall whether Surface Pro owners should immediately stop using their cables. Until further notice, that couldn’t hurt—or at the very least do not leave a Surface Pro, Pro 2, or Pro 3 plugged in and unattended. 🔌



In the U.S., the recall is only for tablets sold before March 2015.



These are the 25 worst passwords of 2015

BY IAN PAUL

LOOK ON THE bright side! There's one good thing that comes out of all those *website breaches* every year: Security researchers get to comb through all the lists of usernames and passwords to remind us just how bad most of our passwords are. We may be well into 2016, but it's not too late to heed the lessons password-management company SplashData conveys through its list of the 25 worst passwords of 2015.

SplashData's annual roundup of the worst passwords of 2015 is based on more than 2 million passwords that leaked online during that year. One trend the company found in 2015 is that while users are coming up with longer passwords (that's good), they are simple and not random (that's bad). Two examples the company points to are **1234567890** and **qwertyuiop**. One just uses every number key and the other uses the top row of keys on a standard QWERTY keyboard.

One trend the company found in 2015 is that while users are coming up with longer passwords (that's good), they are simple and not random (that's bad).

More common password faux pas include using basic numerical passwords and sports terms. *Star Wars: The Force Awakens* was big news in 2015, and it seems many people went with *Star Wars*-themed passwords such as **starwars**, **solo**, and **princess**. *Star Wars* fans may be Jedis in other areas, but they're still Padawans when it comes to passwords.

Here's Splashdata's complete list of the 25 worst passwords for 2015, with their ranking from 2014 in brackets:

- | | |
|--------------------------|----------------------|
| 1. 123456 (Unchanged) | 14. 111111 (Up 1) |
| 2. password (Unchanged) | 15. 1qaz2wsx (New) |
| 3. 12345678 (Up 1) | 16. dragon (Down 7) |
| 4. qwerty (Up 1) | 17. master (Up 2) |
| 5. 12345 (Down 2) | 18. monkey (Down 6) |
| 6. 123456789 (Unchanged) | 19. letmein (Down 6) |
| 7. football (Up 3) | 20. login (New) |
| 8. 1234 (Down 1) | 21. princess (New) |
| 9. 1234567 (Up 2) | 22. qwertyuiop (New) |
| 10. baseball (Down 2) | 23. solo (New) |
| 11. welcome (New) | 24. passw0rd (New) |
| 12. 1234567890 (New) | 25. starwars (New) |
| 13. abc123 (Up 1) | |

Save yourself

There's no doubt about it, managing passwords is a pain, but they're the best security measure available right now. Tech companies are working to change that (go.pcworld.com/w10biometric), but at the moment there's no getting around the need for good, strong passwords.

The best thing to do is to create long, *random* passwords that are hard to guess. Your passwords should use a combination of letters (including different cases), numbers, and symbols if possible. Also make sure you use a unique password for *every* major account you have, including banking, email, Paypal, social networks, and any website that has your credit card data, such as Amazon.

If you have trouble remembering those new passwords, then use a password manager such as KeePass, LastPass, Dashlane, or SplashID.

You should also use multifactor authentication whenever it's offered to keep your accounts extra safe. That way if you ever lose control of your password, malicious hackers won't be able to break into your account without the numeric code generated on your smartphone. Most major services support multifactor authentication, including Amazon (go.pcworld.com/protectamazon), Facebook, Gmail, Microsoft, and Twitter.

Keeping your accounts secure isn't simple, but if you stick to the basics you can minimize the complexity—and adhering to best practices will save you from headaches should your account credentials end up in the hands of hackers. 🔌



Testing firm picks Kaspersky and Bitdefender as the best antivirus suites of 2015

BY IAN PAUL

INDEPENDENT ANTIVIRUS TESTING lab AV-Comparatives works hard all year testing AV suites to let consumers know what to expect from the major service providers. The Austria-based organization just released its 2015 report (go.pcworld.com/av2015) rating 21 major security suites for Windows, with Kaspersky Lab taking the award for product of the year.

Kaspersky won top honors for having the best overall performance across a variety of tests such as real-time protection, file detection, and malware removal. Although Kasperksy won the top spot, it

actually tied with Bitdefender—but AV-Comparatives' rules against awarding a company product of the year two years in a row bumped the 2014 winner to second place.

This is something of a trend for AV-Comparatives, as the 2013 product of the year award went to Kaspersky Lab, which is why Bitdefender won in 2014.

AV-Comparatives' 2015 roundup includes pretty much every name you've heard of in the world of Windows security suites, including

The best antivirus suites of 2015

	File Detection Test (MARCH 2015)	Proactive Test (MARCH 2015)	Performance Test (MAY 2015)	Real-World Protection Test (MARCH-JUNE 2015)	Malware Removal Test (MARCH-SEPTEMBER 2015)	File Detection Test (SEPTEMBER 2015)	Performance Test (OCTOBER 2015)	Real-World Protection Test (AUGUST-NOVEMBER 2015)
Kaspersky Lab	•••	•••	•••	•••	•••	•••	•••	•••
Bitdefender	•••	•••	•••	•••	•••	•••	•••	•••
ESET	••	•••	•••	•••	••	•••	•••	•••
Avira	••		•••	•••	•••	•••	•••	•••
Emsisoft	••	•	•••	••	••	•••	•••	•••
eScan	••	••	•••	••	••	•••	•••	••
Avast	•	tested	•••	•••	•••	••	•••	•••
AVG	•		•••	•••	•••	•	•••	•••
Tencent	•		•••	•••		••	•••	•••
Fortinet	•••	•	••	•••	••	••	•	••
Sophos	••		•••	••	••	••	•••	••
BullGuard	••	••	••	••	••	•••	••	•
F-Secure	••	••	••	••	••	••	••	••
Panda	••		••	••	••	•••	••	••
McAfee	•••		•••	•		••	•••	••
Lavasoft	••	tested	••	•	••	•••	••	•
Trend Micro	•		••	••		••	••	••
QuickHeal	••		•	••		••	••	•
Microsoft	tested	•	••	•	••	tested	••	•
Baidu	tested		•••	••		tested		••
Vipre	•	tested	•	tested	•	••	•	tested

• = Standard •• = Advanced ••• = Advanced+ An empty box indicates that the vendor did not participate in the test.

Avast, AVG, Avira, Baidu, Bitdefender, BullGuard, Emsisoft, eScan, ESET, Fortinet, F-Secure, Kaspersky Lab, Lavasoft, McAfee, Microsoft, Panda, Quick Heal, Sophos, Tencent, Threat Track Vipre, and Trend Micro.

In addition to product of the year, AV-Comparatives also handed out awards for performance in specific situations:

- Real-World Protection: jointly to Bitdefender and Kaspersky
- LabFile Detection: jointly to Kaspersky Lab and Bitdefender
- Lowest False Positives: Microsoft
- Performance (speed): Avast
- Proactive Protection: Bitdefender
- Malware Removal: Kaspersky Lab

The impact on you at home: While it probably doesn't matter to you what awards a security suite wins, AV-Comparatives' annual summary is still a good resource. First, it tells you that Kaspersky and Bitdefender are probably great choices if you're looking for a solid security suite. It can also help if you want to see how your security suite stacks up against the competition. Anyone sticking with Microsoft's free Defender, for example, can see that it's got a pretty standard score across the board. That means it works just fine, but could stand to improve its performance compared to the competition. 🔌

It can also help if you want to see how your security suite stacks up against the competition.

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TESTED IN PCWORLD LABS

In this section, hardware & software go through rigorous testing.

REVIEWS & RATINGS



Dell Skylake XPS 13: The best ultrabook just got better

BY GORDON MAH UNG

A **T FIRST GLANCE, MOST WOULD DISMISS** Dell's 2016 refresh of the XPS 13 (go.pcworld.com/xps13) as minor at best. If you dig into the details, though, the upgrade to arguably the best ultrabook of last year is a worthy one.

The highlights are the move from the 5th-gen Broadwell Intel chip to a 6th-gen Skylake chip and the inclusion of a rather cool USB-C implementation that we'll get into later, but there's a whole lot more here.

If you didn't catch our review of the XPS 13 (go.pcworld.com/XPS13rev) last year, I can sum it up as: great performance, reasonably priced, good build quality, and the smallest laptop in its class with a 13-inch screen. I mean, for a 13-inch laptop, this thing is freaking small.

Its footprint clearly puts it in the same class as laptops with far smaller screens, such as the MacBook Air 11 or Toshiba Radius 12. As their names imply, those use 11-inch or 12-inch screens. I'd almost put

**The updated
XPS 13's**

footprint is still spectacular. Here is last year's virtually identical model on top of a MacBook Air 13.





From top to bottom: Apple MacBook 12, Apple MacBook Air 11 (2014), Dell XPS 13 (2016), Toshiba Radius 12, Apple MacBook Pro (2015), Asus UX305 (2016), HP Spectre X360 (2015), Lenovo Yoga 3 Pro, Lenovo Yoga 900, Dell XPS 15 (2016).

the XPS 13 on a par with Apple's MacBook (not Air) 12, but the MacBook 12 (go.pcworld.com/MacBook12) is an especially lightweight beast.

While the XPS 13's footprint isn't that much bigger than the MacBook 12's, the updated XPS 13 is heavier and thicker, as this massive profile shot lined up above illustrates. As much as some might want to put the MacBook 12 in the same class as the XPS 13, it's not. Don't be fooled by the visual curved surfaces the laptop makers use to make you think they're thinner either. I measured the three contenders and found the Asus UX305 (go.pcworld.com/AsusUX305) to be the thinnest, with Lenovo's older Yoga 3 Pro (go.pcworld.com/Yoga3Pro) slightly thicker. Truth be told, we're talking millimeters of difference.

The XPS 13 continues to be built more like what they'd call in the old days a fire plug.

Externally, it's virtually identical to last year's model. The only tell is the displacement of the mini DisplayPort from last year's model to a USB-C port. USB-C allows for reversible USB cables that support multiple standards. While I welcome reversible cables, I don't welcome the confusion. While the USB-C or USB Type-C connector can support many standards, they're optional. That means not all USB-C

cables support higher data rates. Or DisplayPort. Or Thunderbolt 3. It just depends.

In Dell's case, it took the smart route by supporting pretty much all the standards you need. It has USB 3.1's 10Gbps data rates, DisplayPort out (using a dongle), and Thunderbolt 3. That means anything you can fit into this port is probably going to work.

The real surprise to me was the support for USB-C charging alongside the standard barrel charger. It ships with the same, standard compact Dell 45-watt charger, but if you have access to a newfangled USB-C charger from, say, Google's newest Pixel (go.pcworld.com/Pixel2015), it'll charge.

Why not just go all in with USB-C? I suspect Dell knows we're on the cusp of leaving proprietary barrel chargers for the promised land of universal charging. But in reality, Dell also knows universal charging isn't all it's cracked up (go.pcworld.com/universalcharging) to be just yet.

From top to

bottom: Dell XPS 13 (2016), Toshiba Radius 12, Apple MacBook Pro (2015), Asus UX305 (2016), HP Spectre X360 (2015), Lenovo Yoga 3 Pro, Lenovo Yoga 900, Dell XPS 15 (2016).





The 2016 XPS 13 on top of the 2015 model. The only real external difference you can see is the move from mini DisplayPort to USB-C.

In fact, I ran into the harsh reality of the slippery standard of USB-C charging again with the XPS 13. While I won't bog down this review with the details, let's just say while USB-C charging on the XPS 13 works with several third-party bricks, and the company has told me it fully supports the standard, it didn't work all the time.

Dell's design is nevertheless very clever, as you get the best of both worlds—something that reliably works today with the millions of Dell bricks, and support for a standard that is rapidly emerging.

It's what's inside that counts

For most people considering the latest XPS 13, it's what's inside that counts. The midrange version we tested features Intel's Core i5-6200U paired with 8GB of LPDDR3 and a 256GB PCIe M.2 NVMeM (go.pcworld.com/nvmeeverything) drove.

All three are steps forward. Last year's 5th-gen Broadwell is far slower in graphics, and a step back in CPU chores. The 2015 XPS 13 also used DDR3L-RS, which is Micron's Reduced Standby RAM. DDR3L-RS uses roughly 40 percent less energy than standard

Dell XPS 13

PROS

- Tiny footprint
- Supports USB-C charging
- Solidly built

CONS

- Keyboard is a tad small
- Oddly placed webcam.

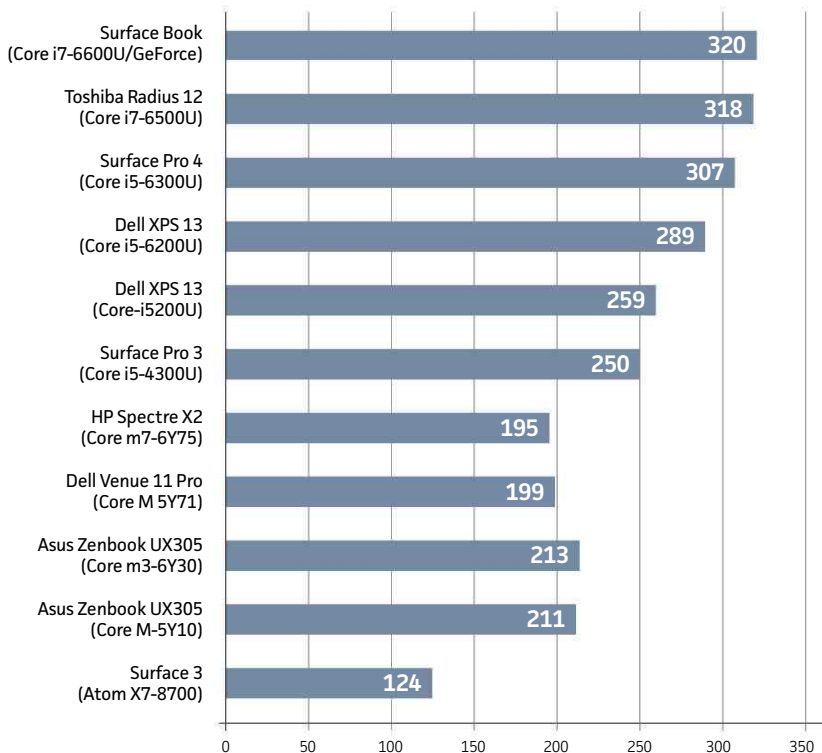
\$1,149 for Core i5, 8GB RAM, 256GB, 1080p, non-touch



DDR3L when in standby, while being very low-cost. LPDDR3, though, is the gold standard for power consumption while in standby mode, and the memory of choice in phones, tablets, and other laptops.

The last internal upgrade is in storage. The 2015 model supported M.2 drives (go.pcworld.com/M2drives), which can run older legacy SATA or the newer PCIe for even better performance. Last year's model used the slower legacy SATA. Early in its life cycle, I actually

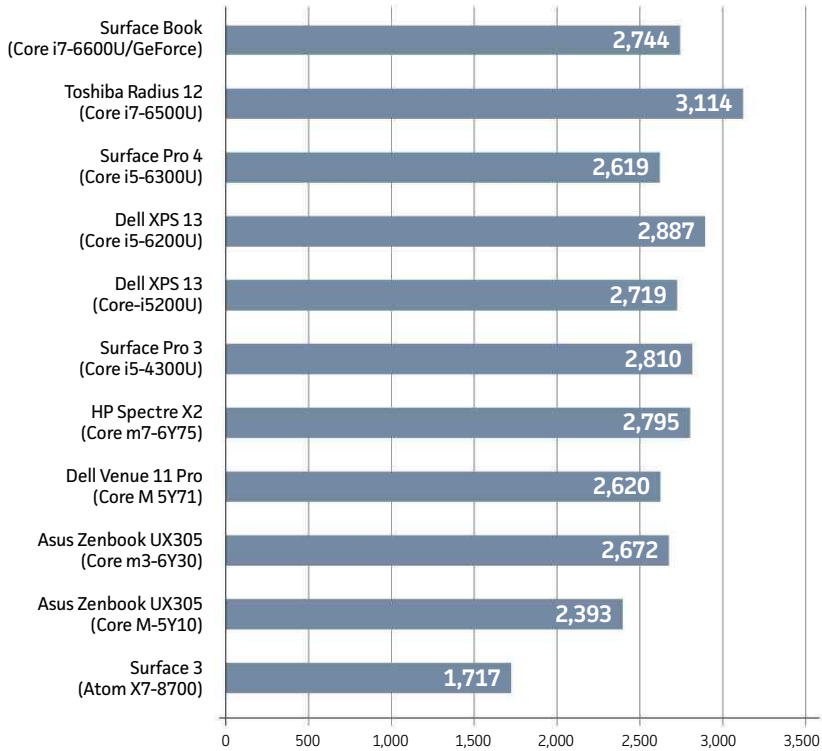
CineBench R15 All Threads



LONGER BARS INDICATE BETTER PERFORMANCE

The Dell XPS 13 with the new Skylake CPU is a nice upgrade to last year's Broadwell CPU.

PCMark 8 Work Conventional Overall



LONGER BARS INDICATE BETTER PERFORMANCE

For most Office tasks, you'd really be hard-pressed to tell the difference between any of the devices here save the Surface 3 and its Atom processor.

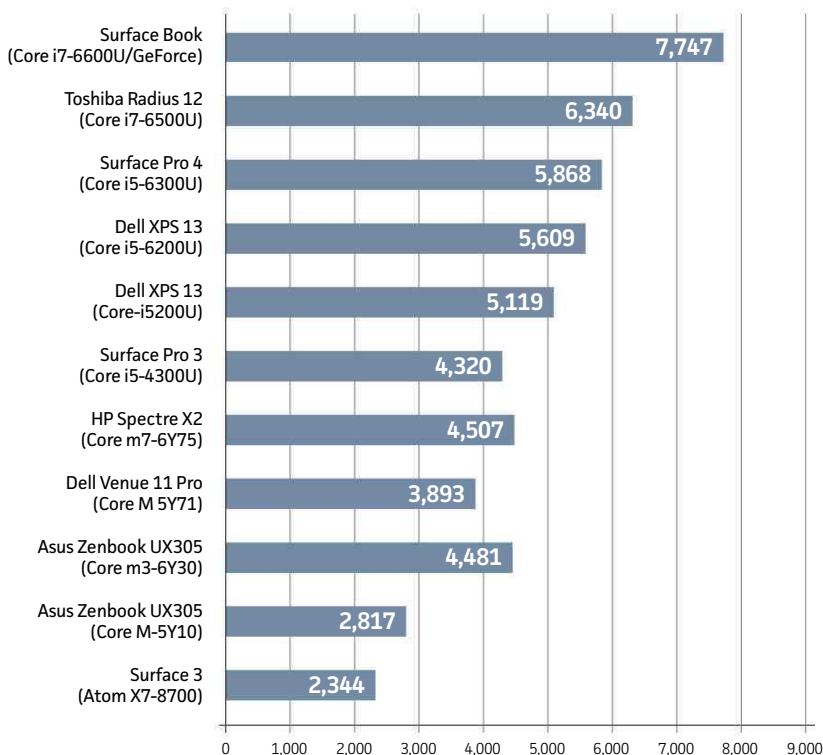
tried to upgrade last year's XPS 13 to a PCIe drive and failed, because the laptop's BIOS would not boot to it.

With the new XPS 13, Dell finally supports booting to PCIe M.2 drives and does it one better by also supporting the new NVMe standard. The M.2 drive in my review laptop was none other than Samsung's PM951 NVMe drive. While the SATA drive in last year's model would

top out at 473MBps while reading files sequentially and 264MBps writes using CrystalDiskMark 5, this year's hit 1,500MBps reads and 307MBps writes.

That's a spectacular upgrade in performance. Unfortunately it didn't go without snags. As first shipped, the XPS 13's NVMe M.2 drive was blazing-fast but it also had an issue where it prevented the laptop from going

3DMark Cloud Gate Overall



LONGER BARS INDICATE BETTER PERFORMANCE

Skylake-based Core m chips get a nice boost in graphics performance.

into deeper sleep states and consumed more power than expected.

For example, even though Dell has gone to a larger battery with the new XPS 13—57 watt-hours vs. 52 watt-hours in last year’s—battery life was worse. Dell updated the firmware, promising several “hours” more of run time. We’ll run some follow-up tests and let you know if that holds true.

The real upshot of this one test is you’d be hard-pressed to tell the difference between just about any of these devices in a typical work environment.

Performance

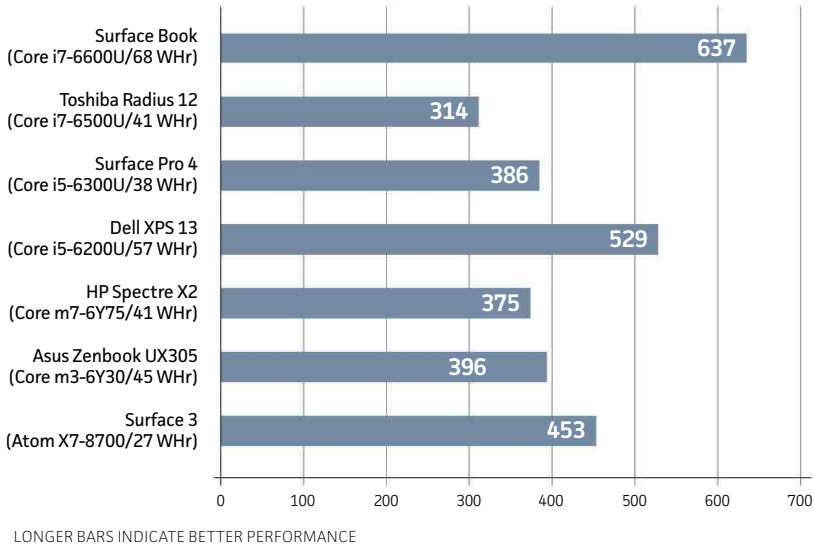
For the gearheads, you just want to know if that Skylake chip is better than the Broadwell chip in the older unit. The first test I’ll go over is CineBench R15. It’s a free benchmark that uses Maxon’s Cinema 4D engine to render a 3D frame. It’s pretty much a pure CPU benchmark. Granted, it’s not something the typical thin-and-light laptop user will actually run, but it gives you an idea of how fast the CPU itself is.

Work performance

We know not everyone is going to be doing 3D rendering on an Ultrabook, so we also rely on PCMark 8’s Work Conventional test as a realistic gauge of everyday office drone performance. The benchmark uses a set of internally created programs for browsing, word processing, spreadsheeting and video conferencing. The results are rather interesting. That the new XPS 13 is faster than last year’s model is no surprise. Oddly, both the Surface Book with its Core i7 and the Surface Pro 4 are off the expected pace given their model’s CPUs. I don’t have time to delve into it here, but it’s worth noting. The real upshot of this one test is you’d be hard-pressed to tell the difference between just about any of these devices in a typical work environment.

I know, as I’ve tried using most of the units here as daily drivers. When you’re talking email, browsing, and Microsoft Office, I just can’t

4K Movie Playback High Brightness (min)



Battery life on the new XPS 13 is decent but not stellar.

tell. The only time you feel it is when you dip down to the Surface 3 with its Atom CPU.

Graphics performance

Intel's Skylake gives you a nice upgrade in graphics performance, and we can see it in 3DMark Cloud Gate. If you focus on just the XPS 13 versions, it's a decent bump in performance. None of the laptops here would really make great gaming laptops, but for very old games at lower resolutions they'd be fine.

Battery life

Our new XPS 13 review is probably one of the last ones to hit the streets. Much of that is because of problems we had with our battery tests. It's a messy affair which must be explained.

I initially tested the new XPS 13 with MobileMark 14 and hit 647 minutes of run time. That was unexpectedly lower than last year's XPS 13 which, with its 1080p, non-touch panel hit 728 minutes of run time. Working with Dell, we determined that an issue with the M.2 NVMe drive kept the laptop from entering lower sleep states. Once updated, Dell said we should expect several hours' more run time.

Unfortunately, in the time between Dell's issuing a BIOS update, Microsoft continued to issue patches for Windows 10 and MobileMark 2014 stopped working. This isn't a dig at Dell, as several other laptops I'd been testing also started to fail. In fact, as I write this, I still can't run it on the new XPS 13.

As a stop-gap solution, I fell back on a video rundown test. The test uses a 6.5GB 4K video file and is played using the Windows 10 Movies & TV player at a relatively bright 250 to 260 nits. My results for the new XPS 13 show roughly 529 minutes of run time, or just under 9 hours of 4K video playback.

To complicate matters even more, Dell did actually update the BIOS

The new XPS 13

keyboard still feels a tad bit cramped to me.



to address the M.2 drive sleep issue. But since I can't run MobileMark 2014, I can't tell whether it actually fixed the issue. Because the laptop doesn't sleep when playing video, the results were unchanged.

The upshot is all in all, the battery life is good but not stellar. If you're into stupid long battery life though, Dell sells two different-sized external battery packs for the XPS 13.

Things I still don't like

To get the XPS 13 as small as it can, Dell made two compromises. The first is the webcam that gets moved into the lower left corner of the screen. It makes for pretty unusual Skype chats. The second is the keyboard. It's still just a little cramped with its tiny keys. If Apple can get a comfy keyboard on its MacBook Air 11, why can't you, Dell? Likewise, a much larger-framed HP Spectre X360 keyboard, or even the Surface Pro 3's, feels like loosening up your belt after a big dinner.

Staying on top of driver or BIOS updates has also become a chore since the company's auto update program was found to have security issues. Maybe I'm spoiled, but Microsoft's ability to push out new drivers and firmware via Windows Update make life a lot easier. HP is also capable of securely (so far anyway) scanning for driver and BIOS updates, so Dell, fix your auto-update system.

HP is also capable of securely (so far, anyway) scanning for driver and BIOS updates, so Dell, fix your auto-update system.

Conclusion

Dell's XPS 13 remains a worthwhile upgrade, and despite a year of competitive laptops, still easily our favorite. This supposedly minor refresh makes it even a little better. If you're looking for the best compact ultrabook, you don't have to look much further. 🔌

Asus ZenBook UX305: Still the best budget ultrabook around

BY GORDON MAH UNG

LAST YEAR WE declared the Asus ZenBook UX305 (go.pcworld.com/ZenBookUX305) the best budget ultrabook of 2015, for delivering performance and quality that belied its price. It's no surprise Asus has barely altered the blueprint for the 2016 model.

The most notable difference is the CPU. The previous model's Broadwell-based Core M-5Y10 is now replaced by Intel's Skylake Core m3-6Y30 chip.



Other than that, there's little detectable difference. That means while the previous model's strengths remain, so do its weaknesses. As before, the 13.3-inch, 1920-by-1080 IPS screen is merely average. There's still no keyboard backlighting, and the trackpad, while adequate, has an unusual bounce to it. Also, in the light of 2016, it would be nice to see USB-C on the UX305 for charging—and as a replacement for the funky micro-HDMI port.

Fortunately, those annoyances are overshadowed by the UX305's assets. It's superthin at less than 13mm, as well as reasonably light at 2 pounds, 10.3 ounces. It continues to be fanless, and—the best part—it's still a hell of a deal.

Great specs

Our Asus UX305 is priced at \$699, with 8GB of RAM and 256GB of reasonably fast storage on its SATA M.2 SSD.

That's a steal compared to other brands' offerings. Dell's XPS 13 at \$799 gives you 4GB of RAM and 128GB of storage. HP's Spectre x360, meanwhile, matches the Dell's RAM and storage, but for \$900. Then there's Microsoft's Surface Pro 4—also with 4GB of RAM and a 128GB SSD—which will cost you \$1,030 once you've tacked on a keyboard.

To be fair to Dell, HP, and Microsoft, their devices each offer something that the UX305 doesn't. The XPS 13 has a wickedly small footprint and packs a full Core i5 Skylake chip with Thunderbolt 3. The HP gives you the same Core i5 as the Dell, plus a touchscreen and the ability to flip the screen 360 degrees. The Surface Pro 4, well, that's a tablet, right? All three also have backlit keyboards.

But here's the thing: For people on a tight budget, a lot of those premium features aren't worth the extra dough. Not when the UX305 delivers the bread and butter of a good computing experience, with its additional storage and RAM.

Asus ZenBook UX305

PROS

- Great specs for the price
- Core m offers reasonable office performance

CONS

- No USB-C port for charging or external display
- Keys aren't backlit

\$699





The new Skylake-based Asus UX305 is super thin and fanless too.

Of course, the CPU also matters. You're no doubt wondering how the UX305's Core m3 compares to the Core i5 in competing models. As always, it depends.

Office performance

To test the Core m3's mettle with office drone tasks, I turned to PCMark 8 Work, and the results aren't surprising. Anyone who uses a computer for work knows that once you get enough RAM, an SSD, and a reasonably fast CPU, you'll have no problem pushing around Microsoft Word, PowerPoint, and most common business apps. The PCMark 8 results highlight this: The UX305's Core m3 performs closely with the Core i5 and i7 chips in the pack. You have to dip down to an Atom X7 before you really feel the pinch, and even that isn't a deal-breaker for everyone.

Pure CPU performance

As this is the first Core m3 laptop we've reviewed, I was curious about its performance with something more CPU-intensive. For that I turned to Maxon's CineBench R15 benchmark. This test renders a single 3D scene using all of a CPU's cores. It's a pure CPU benchmark in that the memory and storage performance don't matter much.

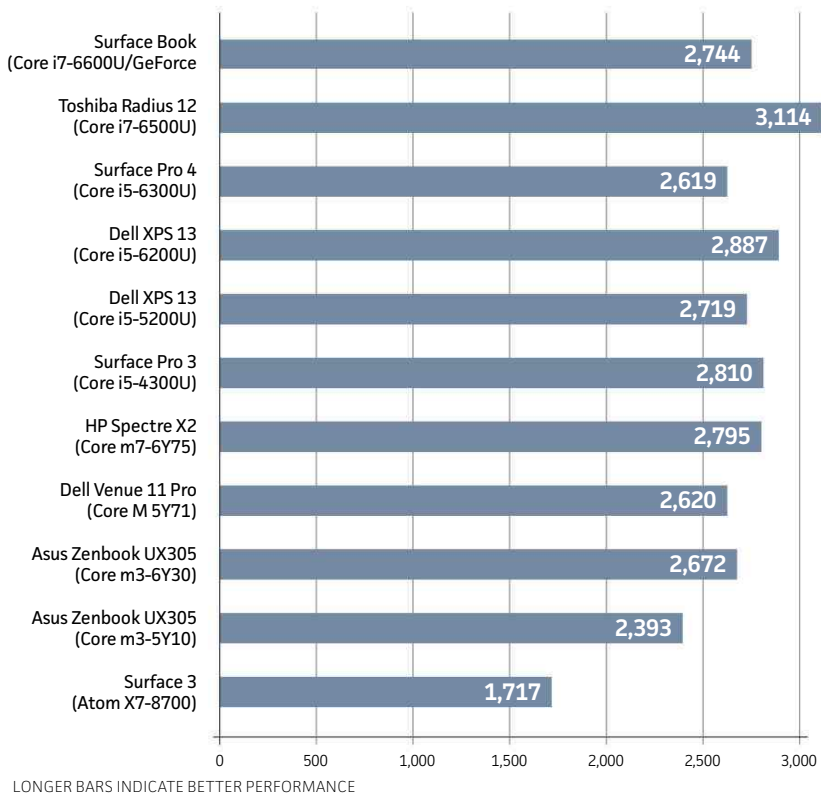
The results are interesting. Last year's Broadwell Core M-5Y10 performs nearly identically to this year's Skylake Core m3-6Y30. Both outpace Dell's Venue Pro 11 with its Broadwell Core M-5Y71, as well as HP's Spectre X2 with a Core m7-6Y75.

On the surface, it might seem strange that the two better CPUs performed worse, but consider that the Spectre X2 and Venue 11 Pro

are both 2-in-1s. All of their computing parts, including the CPU, reside under the screen. Heat concerns prevent the CPU from being pushed as hard as in a traditional laptop, such as the UX305.

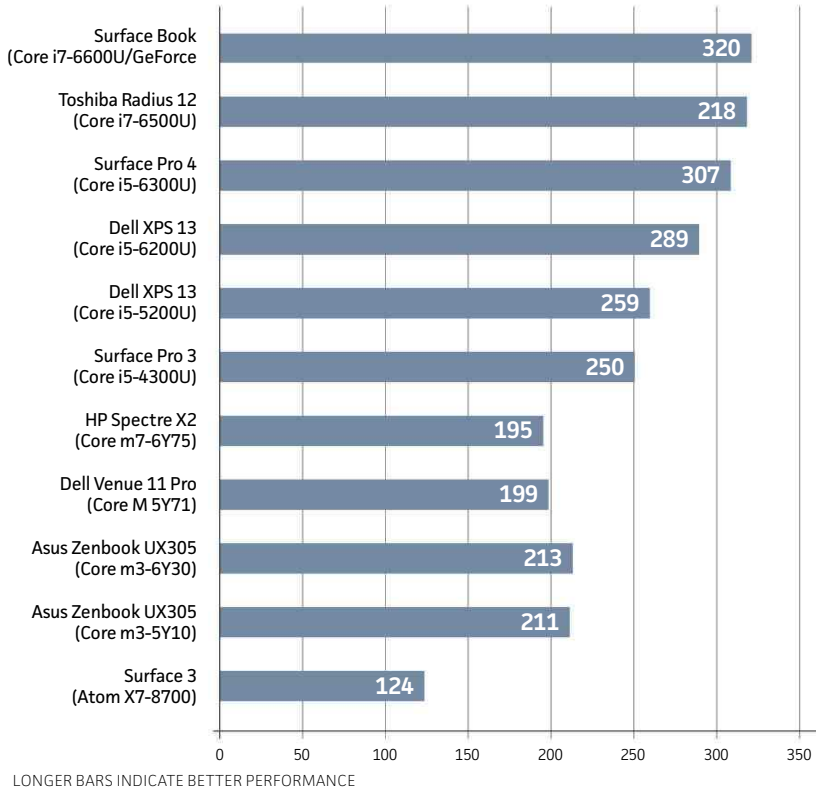
Still the UX305's m3, as well as all the other mobile CPUs here, show a notable drop-off in performance from the Core i5 and higher chips. This correlates directly with the mobile parts' absence of fans.

PCMark 8 Work Conventional Overall



For most Office tasks, you'd be hard-pressed to notice a difference between a Core i7 or Core m chip.

CineBench R15 All Threads



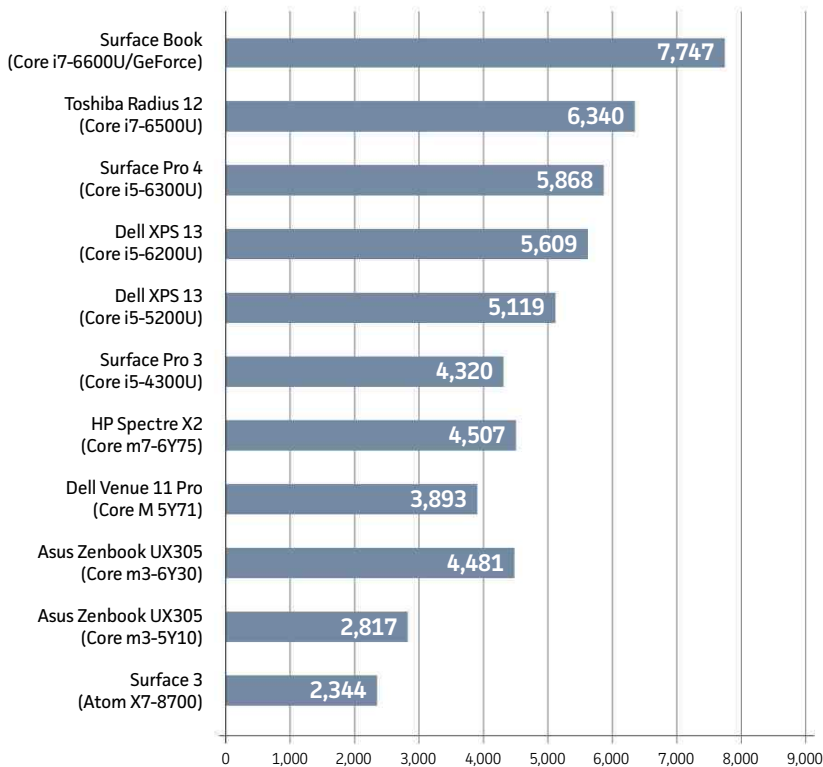
The Core m and Core M fanless CPUs lag behind Core i5 and Core i7 chips in pure CPU performance.

Before this sways your buying decision, let me point out that the CineBench test is a heavy workload that the typical laptop user won't run. If you don't anticipate doing 3D rendering, heavy video editing, or any other task that strains the CPU, the lack of a fan shouldn't have a noticeable effect.

Graphics performance

While CineBench is a pure CPU test with fairly predictable results, our graphics test revealed some curious findings. The newer Skylake-based Core m3 with its Intel HD Graphics 515 is dead-even with the Core m7 in the HP Spectre X2. Both are also dead-even with the older Haswell-based Core i5-4300U in the Surface Pro 3.

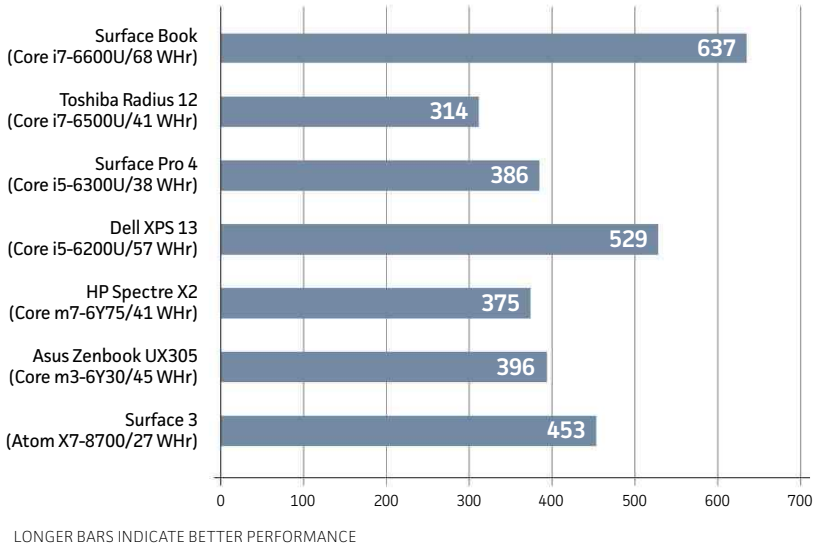
3DMark Cloud Gate Overall



LONGER BARS INDICATE BETTER PERFORMANCE

Skylake-based Core m chips get a nice boost in graphics performance.

4K Movie Playback High Brightness (min)



Battery life on the UX305 was fair in our challenging video playback test.

Furthermore, while the older Broadwell-based UX305 was dead-even with the newer Skylake UX305 in pure CPU performance, there's a huge difference between the two in graphics performance. I was critical of the original UX305's graphics, but I'm even more so now that I see how closely it tracks with the Atom X7 chip.

Battery performance

Paramount to any laptop is battery life. Normally, I'd test this with MobileMark 2014, a pretty realistic simulation of work-related tasks, including the time spent reading documents and messing around, say, looking at your phone.

But MobileMark 2014 has been giving me fits since the latest Windows patch, so I resorted to a video rundown test. I played a 4K-resolution .mov file using Windows 10 Movie & TV player. The test is

done with a pair of Samsung earbuds in place, volume on, and the brightness set to a relatively bright 250 nits. That's not maximum, but it's a comfortable brightness setting for home or office during the day.

The benchmark chart features all of the units I've tested so far. For context, I've also included the watt-hour capacity of each device's label. Think of the watt-hour as the fuel tank in each laptop. The larger the "fuel tank" the longer the battery life, as with the new Skylake-based Dell XPS 13.

The UX305's results were merely decent. Despite its larger battery and Core m3 chip, the UX305 barely skates by the Core i5-based Surface Pro 4. The worst performer here is the Toshiba Radius 12, but that's to be expected with its UHD 4K screen.

Overall, the UX305's battery life is adequate; you'll still be able to watch about 6.5 hours of video on it. But that's the very definition of *meh*.

So little has changed in the Skylake-based Asus ZenBook UX305 that this photo of the previous model still applies.

Conclusion

If 2015 was a breakout year for many laptop makers, 2016 so far appears to be steady as she goes. Some vendors have chosen to make tiny changes to bring laptops more in line with newer technologies such as USB-C, while others aren't making any changes beyond swapping the CPU.

In the UX305's case, that's really not a bad thing. For what you get in performance, build quality, and portability, the UX305 is still easily the best budget ultrabook of the year. 🔋



Thinkpad Stack: Lenovo's unique stackable peripherals are made for travel

BY JON L. JACOBI

THE ACT OF CONNECTING

Lenovo's Thinkpad Stack (go.pcworld.com/thinkpadstack) peripherals, one atop the other, each one clicking into place via magnetic couplers, is very satisfying. Maybe I'm easy to please, but it's a pleasant tactile sensation. It's also a clever concept—handsome, stackable peripherals that tear down into miniature bricks that are super easy to store and travel with.

With such a winning design idea, you'd think nailing the particulars would be easy. But as they say, the devil is in the details, and my satisfaction with the Stack was short-lived.

Setting it up

The Stack system consists of four modules, identical in their measurements at three inches wide and just under six inches long. Thickness varies from about a half inch to a full inch, depending on function. Said functions are storing data (a 1TB hard drive), providing



a personal Wi-Fi network (an 802.11ac router), powering the stack and charging your devices (a battery), and making noise (a Bluetooth speaker).

The modules are priced at \$220 for the router and hard drive combo, which acts as an ad hoc NAS box; \$70 for the battery; and \$100 for the Bluetooth speaker. Though the hard drive and router are sold as a package, they may also be used separately, as may the battery and speaker.

Once the Stack was configured and updated, everything worked. But I experienced several minor issues, starting with the setup. I know wireless is the go-to for most people, but there's an Ethernet port on the router, so why can't it be used to configure the unit? It's not that hard to dual-purpose (Internet and local) an Ethernet port.

Instead I had to go grab my iPad, then when the iOS app failed because a required button wasn't visible, I was forced to boot a Windows laptop to initialize the router. This involves connecting to the router's hotspot, downloading and installing the Stack Assistant, creating passwords, then setting the whole thing to operate. If you operate from a laptop as a matter of course, you can pretty much ignore that gripe.

I also have some quibbles with the design. Each module has a mating port on the top and bottom consisting of 14 exposed metal (magnetic) contacts. Fine. Except that the topmost port remains exposed. It's kind of

Lenovo ThinkPad Stack Wireless Router / 1TB Hard Drive Kit

PROS

- Clever stackable router/hard drive combo
- Fast hard drive

CONS

- Can't be configured with the Ethernet port
- Lousy iOS configuration app



Lenovo ThinkPad Stack 10000mAh Power Bank

PROS

- Lots of juice
- Can charge two devices at once



Lenovo ThinkPad Stack Bluetooth Speaker

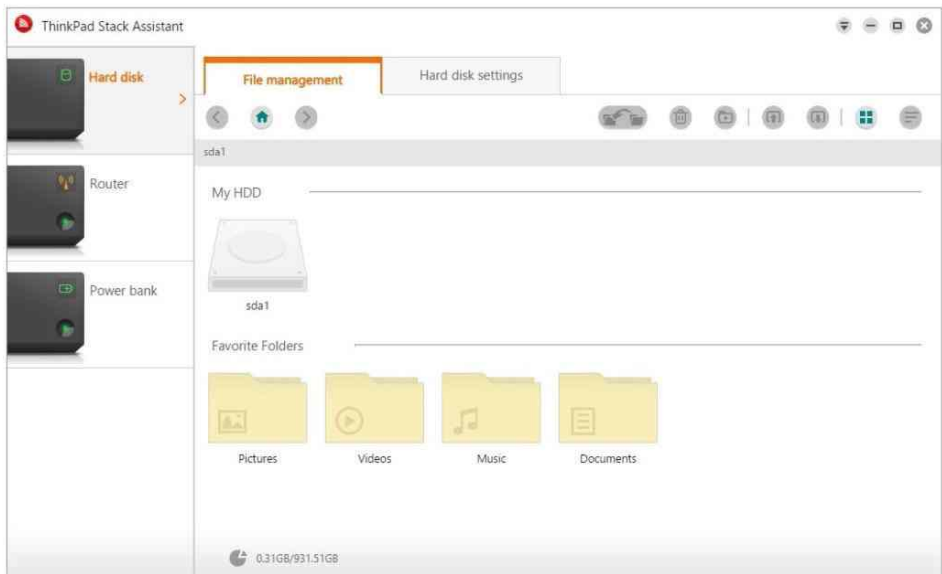
PROS

- Marries with Lenovo Stack peripherals
- 8 hours of battery life

CONS

- Lousy music reproduction





ugly, and when I laid some DVDs on top of it, the red light on top of the uppermost module started to blink. That's Stack-speak for "I'm trying to join the stack now." How about a cap to cover the uppermost port? Quibbling? Perhaps. Perhaps not.

I was also not particularly fond of the 10/100 Ethernet port's position on the back side of the router, when there's room 90 degrees away on the end—where every other port on all four modules is located. If you're making design a reason to buy, little things like cable clutter matter.

All those were mere annoyances, but there was one particularly vexing operational issue with the Stack—unless you completely isolate the battery, it drains very quickly. I'm not sure what kind of maintenance is required by the other modules, or if this is a bug, but I soon learned to keep the battery separate from the stack when it wasn't in use, in which case there was no significant drain over the span of a week. A bit of a pain that.

Speaking of power, all four of the units may be powered and/or

The Lenovo Stack Assistant helps you configure the router and work with files, and provides information on the status of the various modules.

recharged individually via USB. The hard drive has a Standard-A USB 3.0 connector, while the other modules use micro-USB types.

Putting it to use

The big disappointment of the Stack is the Bluetooth speaker. There's nothing wrong with it operationally, it just doesn't sound good. Muddy with a dirty midrange sums it up. For phone calls, it'll do—barely. For music? Forget it.

Note: The upper portion of the speaker enclosure acts like a coupled planar transducer that needs to be exposed at the top of the stack (forget the photos showing it in the middle). Otherwise it sounds even worse.

The speaker has its own battery so it can be used on its own. There's also a headset jack, which you'll probably want to employ given the lack of sonority. Lenovo claims eight hours of runtime for the unit, which is 2x2 watts (power of the amplifier). I'll take its word for it. There's no way I could listen to it for that long.

The performance of the Stack hard drive was a welcome return to quality. It managed about 125MBps reading and writing over USB 3.0, which is about what you'll get from a good external drive from Seagate or WD.

You can use the drive as direct attached storage, but it's also available as a network resource (and mapped automatically as a Windows drive) when you're connected to the Stack router via Wi-Fi. The router runs on Linux, and you

Why Lenovo decided to put the Ethernet port on one side when all the other ports are 90 degrees away is anyone's guess.



have to drill down a couple of layers to get to your files (DISKS/SDA1/...) but it's actually formatted in NTFS.

The hard drive's power state is controlled by the router so it doesn't have its own power button. It also turns on automatically with USB, so that's not an issue. In my first hands-on, the power light didn't stay on, but that was fixed by a firmware upgrade.

I had no difficulty connecting to either the 2.4GHz or 5GHz bands of the Stack 802.11ac

router. Range and throughput were both quite decent. The router may also serve as a bridge to another Wi-Fi network, though it still functions as an independent network—you can't inherit the parent's DHCP assignments or network resources.

3G and 4G dongles are supported via the router's USB port, but the documentation only mentions types used in China. Lenovo said just about any module should work. Dial-up is also mentioned in the documentation, but the app doesn't allude to USB modems. I can tell you that the Shark Leopard modem (yes, I know) that I keep around out of a sense of nostalgia didn't register on the router's radar. If 3G/4G/dial-up capabilities are important you, bug the company for more info. Maybe it'll be more conscientious about detailing such things in the future.

Nicely, especially in light of the poor speaker sound, there's a DLNA server on board. It's labeled miniDLNA, which I'm guessing is because it only streams music. But it supports a nice variety of audio file types including MP3, WMA, M4A, and even OGG.




The side of the Stack with all of the ports, except, for some reason, the Ethernet port, which is located on another side, 90 degrees away.

Weighing in at 8.8 ounces, the power-cell battery is worthy of the name, providing a whopping 10,000mAh of juice that will keep the stack operating for a decent amount of time if, as I said before, you detach the battery when you're not using the stack.

As with other travel batteries, you can use it to charge your mobile devices. In this case, two at a time via dual standard-sized USB Type-A ports.

A great concept that misses the mark

I like the Stack as a concept, and once I'd endured the pain of setting it up and debugging it, I enjoyed using it. But for \$390, I'd like to see more attention to detail, documentation for the United States, and much better sound. 



Transcend SSD370: Excellent value, solid performance

BY JON L. JACOBI

OFTENTIMES, *SOLID* IS perceived as a boring adjective. (Unless of course, you're talking about the ground you're standing on in a liquefaction zone. During an earthquake.) But boring or not, *solid* as it pertains to the overall performance of Transcend's Solid State Drive 370 (go.pcworld.com/ssd370w) has me doing a happy dance.

Why would a midrange drive and mundane modifier invoke such delight? Too much time spent testing TLC SSDs that slow to hard drive speeds when writing large amounts of data, that's why. When I found out that the SSD370 is available at the same price or less than those standing-on-shaky-ground TLC newbies, my dance went up-tempo into a very energetic jig.

Design and price

The SSD370 is a 2.5-inch, 7mm SATA 6Gbps drive available in 128GB to 1TB capacities and uses 16nm Micron MLC (Multi-Level Cell/2-bit) NAND, not slow TLC. As to those delightful prices, while the 512GB version I tested retails for \$270, it's available on Amazon for a mere \$151, or 30 cents a megabyte. The other capacities also sell at 30 cents per. When I checked online, that was right around the price of the cheapest TLC SSDs (OCZ Trion, Toshiba Q300, etc.).

Performance

While not the fastest SATA SSD we've tested, the SSD370 still performed, yes, that word again—solidly—in all our tests. According to AS SSD, sustained sequential throughput was 492MBps while reading and 430MBps when writing. A 4KB file write proceeded at 94MBps and a 4KB file read at 25MBps. The latter ramped up nicely when using 64 threads, to 251MBps and 270MBps. Not all SSDs improve when threaded.

As SSD's conclusions were borne out in our real-world copy tests. Reading a 20GB file took 46 seconds (434MBps) and writing it took 48 seconds (416MBps). With a 20GB group of files and folders, reading was finished in 84 seconds (238MBps) and writing in 73 seconds.

If I have any qualms at all about the Transcend SSD370, it's that the warranty is for only three years. That does, however, come with a considerably higher TBW (Terabytes Written) rating than that offered by much of the competition (550 for the 512GB version). And considering the price, the warranty is hardly worthy of concern. Most SSDs should last far longer than their warranties, now that controllers (the big problem in the bad old days) have matured. I haven't

Transcend SSD370

AT A GLANCE

There are no TLC-like large-file performance drop-offs with this MLC NAND drive. Outside of the somewhat short 3-year warranty, we have zero complaints about the SSD370, and it's just as cheap as the slower TLC competition.

PROS

- Solid-to-excellent MLC performance
- Bargain pricing

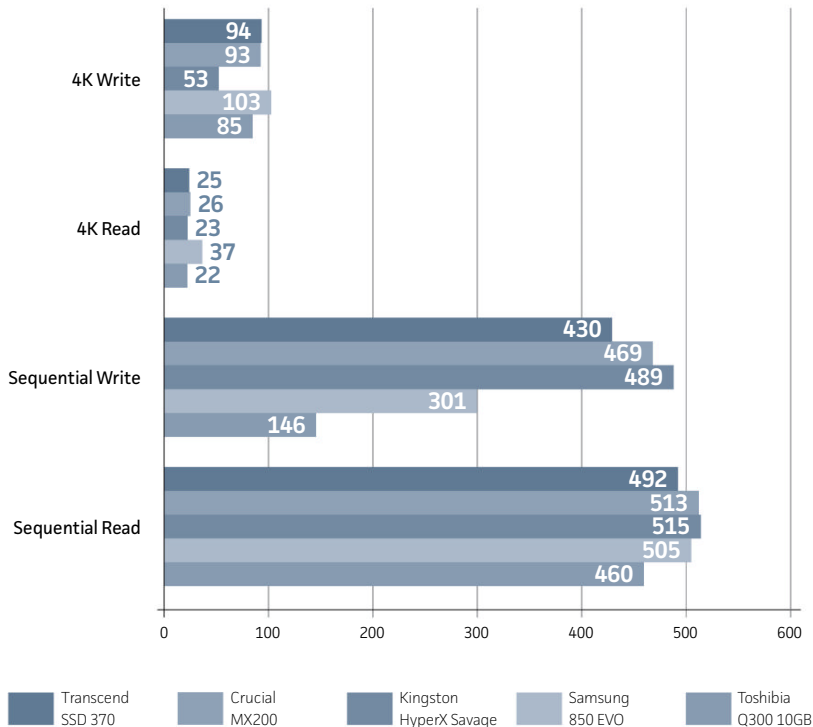
CONS

- Only three-year warranty

\$151 on Amazon (\$269 retail)



AS SSD 10GB Tests (MBps)



LONGER BARS INDICATE BETTER PERFORMANCE

The Transcend SSD 370 is slightly slower than the other MLC NAND SSDs, but still a much better deal than the TLC-based EVO 850 and Toshiba Q300.

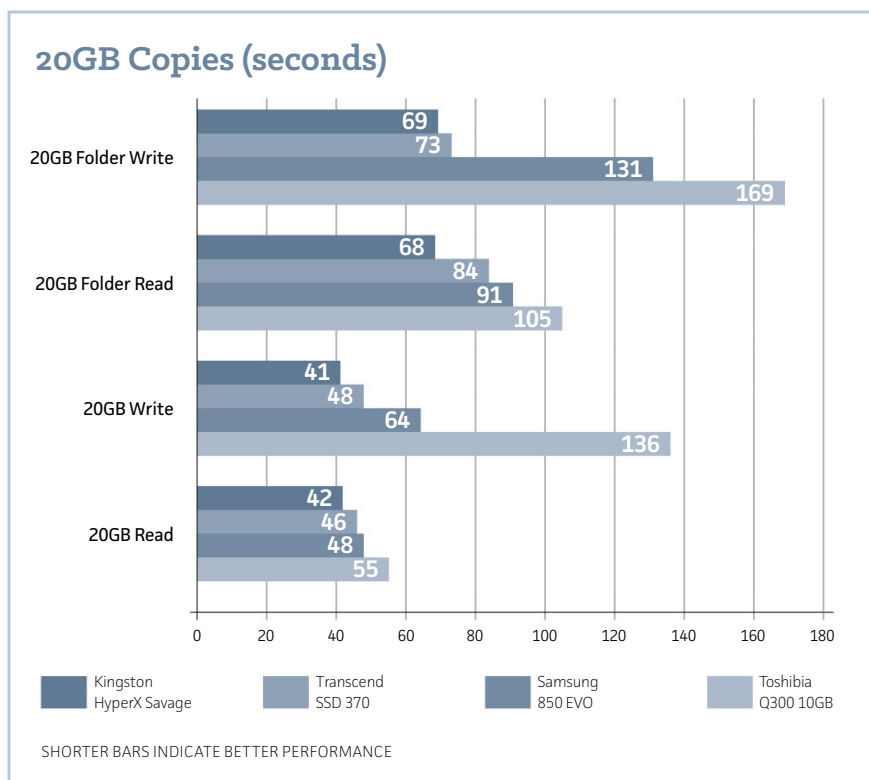
seen a data error, let alone an out-and-out SSD failure in about three years.

Speaking of controllers, the SSD370 uses its own custom version of the SM2246EN (Silicon Motion) which it labels the TS6500. What they've changed beyond the label, I couldn't tell you, but it performs nearly identically.

Conclusion

The SSD370 is very capable. It might not be a top-tier performer, but it's still easily fast enough to give you the real-deal SSD experience. And, as it never drops off when writing large amounts of data, I'd opt for it every time over like-priced TLC competition such as OCZ's Trion and Toshiba's Q300, and possibly even Samsung's EVO series, although the EVO doesn't drop off nearly as badly as the other two, so it could be a tossup.

Note: As to the liquefaction zone comment. What can I say? I live a block and half from one in San Francisco, and yes, I was here in '89. 🇺🇸



Though not quite as fast as the Kingston HyperX Savage, the SSD 370 with its MLC NAND doesn't falter during long write operations as do the Samsung EVO 850 and especially the Toshiba Q300.

Philips 276E display: Quantum dots make this display's color impressively rich

BY JON L. JACOBI

QUANTUM DOTS,
NANOCRYSTAL,
magic diodes.

Whatever you want to call them, these tiny entities are putting the color back into LCD displays. Shine a backlight at them and they re-emit a very pure color strictly in correlation to their size: smaller for blue, larger for red, etc. We're talking nanometers here, one ten-thousandth the width of a human hair.

Philips is here with its new FHD (1080) 276E display (go.pcworld.com/276Edisplay) as proof that filtering light with quantum dots (go.pcworld.com/quantum) enhances color. As you might guess from the name, it's a 27-incher, and the 6 most likely represents its 60Hz refresh rate. E? Extra-special. Mostly.



Color, color, color

If it's been a while since you rocked a CRT or CCFL-backlit LCD, you probably don't even realize how subdued the colors in your LCD really are. They're cold-looking because the LED lighting used in most modern flat-panel displays is heavily skewed toward the blue end of the spectrum. This necessitates a lot of gimmickry just to reach the cool palette that you're probably looking at as you read this.

The moment I fired up the Philips 276E, the quantum dots were apparent. A bright blue screen with the Philips logo flashes on, and it's, somehow, just more blue. Warm blue? Well not really, but that was my gut reaction. Yet it was the first reds that really sealed the deal. They're very vivid, though the 276E's appeared a bit on the pink side before adjustment. Greens are greener as well. In fact, everything beyond blue in the spectrum is richer in hue.

And movies: Wow. Here I thought I was simply at the mercy of the dreary post-processing Hollywood uses to lend a false sense of gravity to drama. Maybe I am, but certainly not to the extent I'd thought. Who knew the superhero suits in *The Incredibles* were actually scarlet? Minions aren't just solid bright yellow? Get outta' here!

If you want to get technical: The 276E delivers 99 percent of the Adobe RGB spectrum, and 100 percent of the older sRGB color space. That sounds awesome, but those are both actually older standards: Adobe RGB encompasses the world of print, while sRGB is the older HD/FHD (720/1080p) Rec.709 color standard. Neither color space is as broad as the newer Rec.2020 standard for UHD/4K displays; however, both are significantly larger than what the average LCD delivers. The fact that these older standards look so vivid compared to the average LCD says a lot about what's been missing.

Philips 276E6ADS Color LCD

AT A GLANCE

The use of quantum dots in Philips' 276E display results in distinctly more intense reds and greens, as well as a ton of usable brightness.

PROS

- Produces a far wider spectrum of color than the average LCD

CONS

- Needs a lot of calibration out of the box

\$600



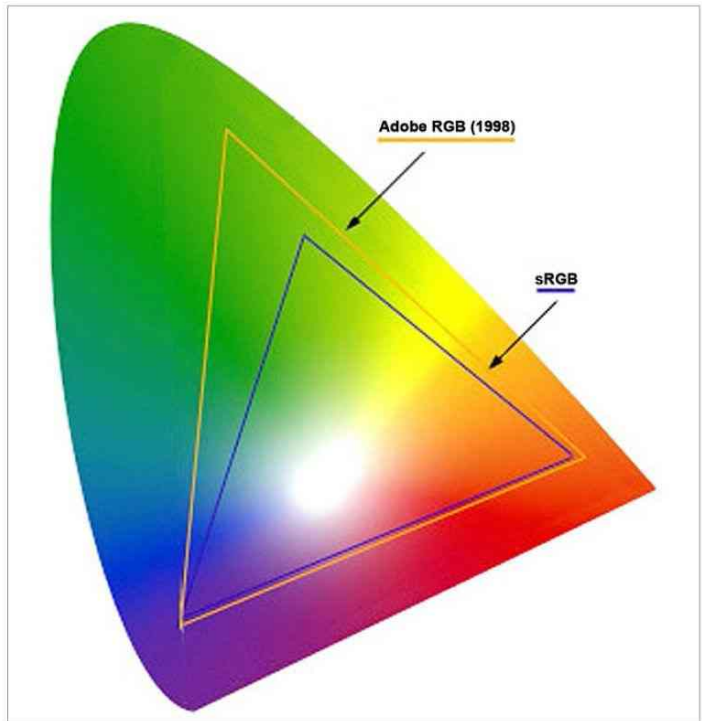
Features

The 276E offers two color temperature presets: 6300K and the 9700K. The latter, cooler one is for users whose brains can't stand the sudden onrush of warm color the 276E delivers. The other tweaks are the brightness, contrast, gamma, and things like pixel orbiting that don't seem to have any effect. I had to increase the gamma considerably from

the standard 2.2 (to 2.6) to get rid of what I considered a slightly washed-out effect on photos.

There are also user settings for the amount of red, green, and blue. I had to lower the red from 100 to about 90 to make gray—well, gray, and reduce the blue to the 80's to make red less pinkish. Also, if you can believe this, I found the 276E too bright in my home environment, even though it measured out at a maximum of 379 nits. I had to knock it down drastically before I was comfortable with it. On the other hand, it was high-on perfect for our fluorescent-heavy test center.

The 276E sports VGA, DVI, and HDMI inputs. At only 1920x1080 (can you tell I've been testing UHD recently?) there's no real need for



While the 276E produces a wide spectrum, it's only 99 percent of the larger triangle, which in turn is significantly smaller than the latest Rec.2020 UHD (4K) standard.

DisplayPort input, though it would be nice. The HDMI supports MHL, so you can mirror your mobile device's display. And though it's not 2160p, it's HDMI 2.0 and supports HDCP 2.2, so you can at least see upcoming copy-protected UHD content, if at only half-resolution. There's also a stereo mini-jack audio input if you don't have other speakers.

Now for the nitpicks. The 276E we were sent is white—not my favorite color for a display bezel. But hey, you can't have everything. Also, I found the touch controls overly sensitive, and difficult to access—located on the back-angled lower front, right where you can barely see them. I had to lean way over and look up, then lean back to see the OSD, lean over and look up, etc. Touch is cool—if you can see what you're touching! Put them on the front of the bezel and be done with it Philips.



Conclusion

Despite the 276E's vivid color, I found myself wishing for the \$400 Monoprice MP-28UHDSS, 28-inch UHD 4K (3840x2160) display I'd been testing previously. I missed the detail and extra screen real estate, even though I run it at WQHD 2560x1440. But the real reason was that my eyes just never got comfortable with the 276E. Perhaps it was the larger dot pitch, or the 5 nits of light bleed (on a solid black background). Then there's the price: \$600 is quite hefty for a 27-inch, 1080 display, quantum dots or no.

But those games and movies! The deep color of the 276E is extremely addictive. If you're using your display largely for entertainment purposes, it should definitely be a destination on your tire-kicking tour. 🏠

The deep color of the 276E is extremely addictive. If you're using your display largely for entertainment purposes, it should be a destination on your tire-kicking tour.



LibreOffice 5.1: The premier open-source office suite just keeps getting better

BY CHRIS HOFFMAN

IT'S A GOOD day for fans of open-source software. The Document Foundation is releasing LibreOffice 5.1 (libreoffice.org) for Windows, Linux, and Mac. On tap are reorganized menus, integrated support for remote servers like Microsoft SharePoint (go.pcworld.com/sharepoint) and Google Drive, improved compatibility with Microsoft Office documents, and too many smaller improvements to count.

LibreOffice 101

LibreOffice is the product of more than 1,000 developers, most of whom are volunteers, and has an estimated 100 million users worldwide. Born in 2010 as a fork of OpenOffice, LibreOffice has taken the lead and left its progenitor in the dust (go.pcworld.com/uselibre). In keeping with the Document Foundation's time-based release schedule, this latest release comes six months after LibreOffice 5.0 (go.pcworld.com/libre5)—and will be followed by another release in six months' time.

Make no mistake: If you want an open-source office suite, LibreOffice is the one to use. Heck, if you just want a desktop office suite that's free to use, LibreOffice is the best option. That's why it's included with most Linux distributions by default. But it's available for Windows and Mac, too.

Make no mistake:
If you want an
open-source office
suite, LibreOffice
is the one to use.

Reorganized menus

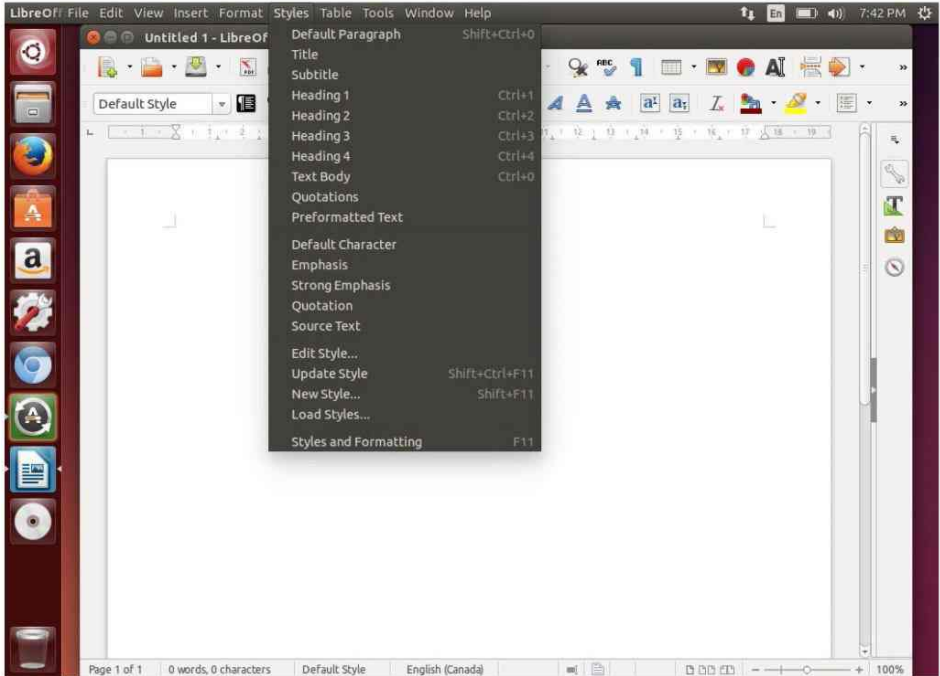
After spending the LibreOffice 3.x series (go.pcworld.com/libre3) cleaning up the code, and the 4.x series (go.pcworld.com/libre4) rearchitecting it, LibreOffice's developers are using the 5.x series to focus on the user interface.

The menus have been reorganized in Writer, Calc, and Impress—LibreOffice's word processor, spreadsheet, and presentation program, respectively. The new menus are designed to provide faster access to the most-used features. Writer gained a Styles menu, Calc gained a Sheet menu, and Impress gained a Slide menu.

The sidebars also got some attention, with the addition of a new Chart sidebar that allows quicker access to chart-editing options. While menus and sidebars don't sound like the most exciting things, a streamlined interface is the kind of unexciting feature that will save many people time.

Saving and loading from remote servers

LibreOffice 5.1 features new integration with remote servers such as



Microsoft SharePoint, Google Drive, Microsoft OneDrive, Alfresco, WebDAV, and FTP servers. You can open files directly from—and save files directly to—these services without any additional software. Any server that supports the CMIS (Content Management Interoperability Services) protocol should work.

The Open A Remote File and Save To Remote Server options under the File menu give you easy access to this feature. After you set up a remote server once, it'll take just a few clicks to access it in the future.

So many improvements

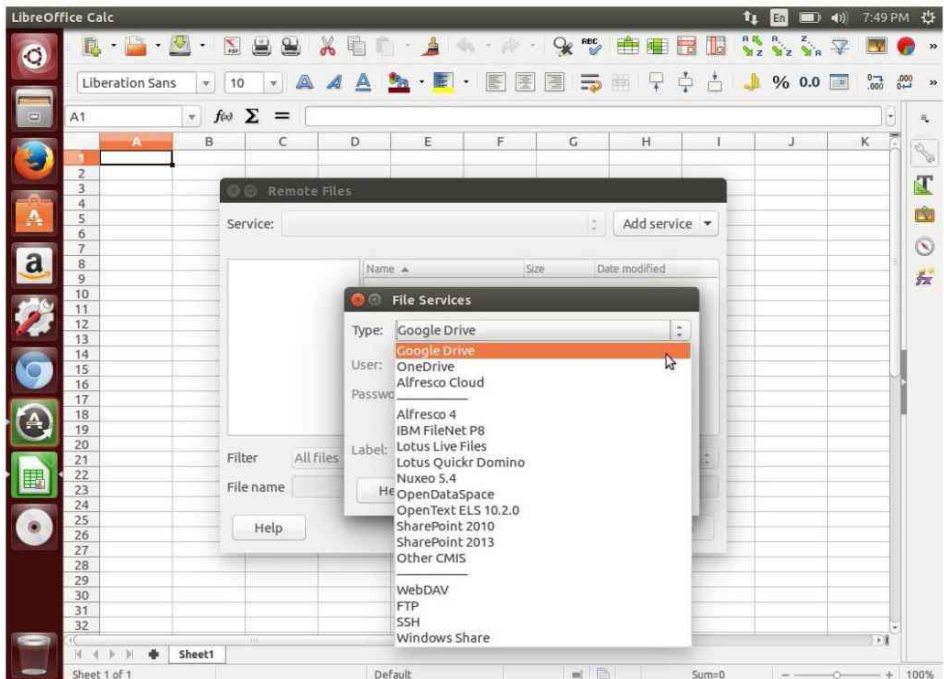
LibreOffice 5.1 promises significantly improved performance on Windows systems compared to previous versions. It also now lets Windows users insert characters using Alt-key codes (go.pcworld.com/altkey).

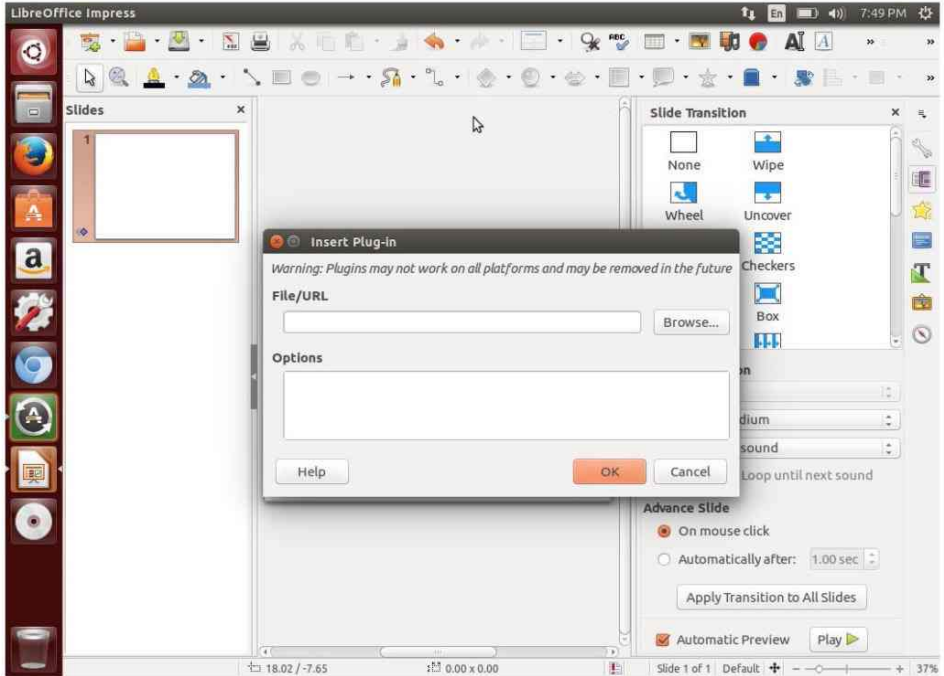
The Styles menu gives you more convenient access to text-formatting options in Writer.

Little improvements are everywhere. Impress's transitions were ported to OpenGL 2.1+, meaning better support for modern graphics processors. The SUM function in Calc makes better use of modern CPU features, to the tune of about five-times-faster performance. Users can easily change autocorrect settings in the spell-checking context menu. Structured references in tables have also gotten some love. The release notes for LibreOffice 5.1 are chock-full of such enhancements. It's the open-source development process at work: Volunteer developers scratch their own itches and everyone benefits.

It's still possible to embed content using an NPAPI plug-in like Adobe Flash, but you're now warned that this is no longer supported. Indeed, it's being removed from LibreOffice 5.2, just as NPAPI support is being removed from browsers (go.pcworld.com/npapisupport). Yes, LibreOffice is helping to kill Flash (go.pcworld.com/libreflash).

You'll only need to sign in to each remote file server once.





LibreOffice still supports embedding ActiveX components on Windows, but this may also be removed in a future release.

Improved compatibility with MS Office and more

The latest version of LibreOffice also features improved interoperability. As always, the developers have tweaked compatibility with Microsoft's Office Open XML format, the default file format for modern versions of Microsoft Office. While Microsoft's OOXML format is technically an ISO standard (go.pcworld.com/isostandard), no version of Microsoft Office—not even Office 2016—uses the “strict” version of the standard. Instead, Office still saves documents using a “transitional (go.pcworld.com/odffile)” version of OOXML by default. As the Document Foundation's Italo Vignoli points out, this is a

Support for inserting

NPAPI plug-ins like Adobe Flash will be removed in LibreOffice 5.2.


transition that's been going on nine years. The Document Foundation says this standard tends to change with each new release of Microsoft Office, often in big ways, making it a challenge for LibreOffice to keep up.

There are also improvements for importing old Microsoft Office documents in binary formats—that means DOC, XLS, and PPT files. Improvements for importing RTF files and Microsoft Visio projects are also included.

LibreOffice supports new file types, too. It can now import Microsoft Write (.wri) documents and Apple Keynote 6 (.key) presentations. On Linux, LibreOffice can now import Gnumeric spreadsheet files.

The WEEKNUM function in Calc also now complies with the ODF 1.2 definition for calculating the week number. This is important for organizations standardizing on the Open Document Format, such as the UK government (go.pcworld.com/ukodf).

The future includes web and mobile apps

Work on LibreOffice web and Android apps is ongoing, too. All that time spent improving the suite's underlying code has made it possible for LibreOffice to go beyond the desktop and on to other platforms. While the Document Foundation doesn't have anything to announce just yet, it will be releasing more details about the web and mobile versions of LibreOffice in the coming months. 

Hitman hands-on preview: Ringing the Blood Money bell

BY HAYDEN DINGMAN

I WAS READY to read out *Hitman's* death warrant. "Here lies Agent 47. Alas, he went episodic." It's not that I have anything against episodic games in theory, but it seemed like yet another sign of troubled development on a game that's been...well, troubled. Especially living in the specter of much-maligned *Hitman: Absolution*. (And, to some extent, that abysmal *Hitman: Agent 47* movie that came out last summer.)





But after a few hours of hands-on time, I've changed my mind.

Don't get me wrong: *Hitman* could still end in tragedy. I've only played the opening bit—a.k.a. the most-polished bit, the bit that is supposed to release in March. After that point, who knows? Square/IO Interactive have promised a bunch of content in the pipeline, including new maps and missions, but if there's anything I've come to expect from episodic releases it's a latticework of delays, rushed content, and missing features/bugs.

So we'll see. The important thing is I believe it *could* work, provided everything goes well.

The game opens with a training mission. Infiltrate a yacht, find the target, kill the target. It's not an especially difficult mission, nor is it very large. I finished it in maybe ten or fifteen minutes, first by disguising myself as a dock worker and then as a member of the yacht staff, eventually taking out the target with a silenced pistol.

Not the cleanest job, but I escaped with no witnesses. Good enough to get paid.

But after I finished, something important happened: The game urged me to go back and replay the mission—not just once, but as many times as I'd like. Until I felt comfortable, I guess.



Replay a mission? It seems a small thing, no doubt. I dwell on it though because it marks a return (of sorts) to *Blood Money*'s design ethos. *Hitman: Blood Money* is many people's favorite entry in the series, and for good reason—large (at the time) areas, hundreds of different ways to get through missions, an emphasis on stealth, ways to make targets look like “accidental” deaths. It encouraged players to devise new solutions, to improvise, to learn the systems and play old missions over and over.

Its sequel, 2012's *Hitman: Absolution*, did not do those things. There always felt like a “right” way of accomplishing Agent 47's task. Items were typically placed in the most obvious place to use those items. Mission areas were small—and hell, most missions didn't even involve killing a target. The open-endedness was subsumed by a tacky, Hollywood-esque story, shuttling you from set piece to set piece.

And so it makes sense for IO to be ringing the *Blood Money* bell. “We swear, we learned our lesson,” says IO. “We're going back to *Blood Money*.” Going back, it's worth noting, to a game that's now a decade old.

It's worth noting because *Absolution* came about for a reason. Not necessarily a reason I or the *Hitman* fans would agree with, but a seemingly-accepted "Truth of the Industry"—that games must be more accessible, allow for less error on the part of the player, go bigger and more spectacular with each new entry.

Which brings us in roundabout fashion back to *Hitman*, 2016 Edition—not really a return to *Blood Money* as much as an updated *Blood Money*, or a fusion of *Blood Money* with some of *Absolution*'s less-offensive ideas.

This new *Hitman*'s opening yacht mission is hardly going to land amongst Agent 47's best—it's not even as complex as *Blood Money*'s "Death on the Mississippi" mission. It's a tutorial. But by encouraging players to try new tactics so early on, it indicates those other tactics exist. That's important when you reach the next mission (a "test" for Agent 47, set on a Cold War-era military base) or when you reach the actual meat of March's release, an enormous Paris map filled with bystanders and objects.

And those other tactics had better exist, because *Hitman*'s success as an episodic title relies on there being a reason to revisit between





releases, to test out new methods of execution. If I find myself less skeptical of *Hitman* as a piecemeal game, it's because I can imagine a well-crafted *Blood Money* level giving players a month's worth of routes to discover. A half dozen of those, and an episodic release makes more sense.

That's what *Blood Money* contributes. As for *Absolution*, its icy hands can be felt in two aspects of the game.

1) Disguises. They work the same as in *Absolution*, meaning people wearing the same clothes will often see through your disguise while others will remain oblivious. This was one of *Absolution*'s best changes, though it became punishing in levels where every single guard wore the same uniform.

Hitman, 2016 has so far ameliorated that problem by making sure multiple guard types are present even when it doesn't strictly make sense. For instance, the military base has gun-toting soldiers and officers. Soldiers will detect Agent 47 in a soldier outfit, officers will detect him in an officer's outfit. Also, the time before you're discovered seems a bit more forgiving this time around.

2) There are a bunch of player aids, for those who are new to the series or perhaps prefer a bit more structure. Chief among these is Opportunities, which basically lead you through a level's unique assassinations step-by-step once discovered (by listening to conversations, for instance).

For my own part, I wanted to toggle them off pretty much immediately.

Luckily, IO was quick to specify you can do just that. Turn all (or most) of them off, if you want a more *Blood Money*-esque experience.

Barring a few pre-release bugs and a bit of slowdown, I'm excited by what I played. Ever since the initial *Hitman* announcement, I feel like I've been holding my breath and thinking "It can't be worse than *Absolution*." But now? Now I'm thinking it all might work out okay. Even if it *is* episodic.

If you've preordered, you're eligible for a beta (go.pcworld.com/hitmanbeta), which you can get access to now. Otherwise, look for the game's release on March 11. 🎮

Barring a few pre-release bugs and a bit of slowdown, I'm excited by what I played.

Char-Broil Simple Smoker: Better than any barbecue (but the app sucks)

BY MICHAEL BROWN

IF YOU LOVE smoked meat, but have been intimidated by the prospect of tending the coals in a barbecue pit for hours on end, you'll want to check out Char-Broil's Simple Smoker. This electric cooker has a meat probe and it communicates with your smartphone via your Wi-Fi network, so you get perfect results with zero fuss. But the Simple Smoker has one major weakness that Char-Broil should and could easily fix: The smartphone app that controls the smoking process is abysmal.

Fortunately, the app's shortcomings don't prevent me from giving the smoker itself a buy recommendation. The core of the Simple Smoker's appeal is its ability to almost automatically slow-cook food



while imparting delicious smoke flavor from smoldering wood chips. If the app worked as advertised, you could start the multi-hour process and walk away, with the app issuing a reminder every 45 minutes to replenish the supply of chips and then informing you when the process is complete. In that respect, the app is as key to the smoker's value as its meat probe, but its many shortcomings never resulted in a poorly cooked meal—because aside from the probe readings, I didn't trust the app from the get-go.

I don't like starting a positive review by focusing on the negative—especially when my overall opinion is positive—but the reason I found the app suspect was that it had so few recipes. When you're ready to start cooking, you click on Choose Food in the app. This brings up four categories of meat: beef, chicken, pork, or turkey. There are no settings for vegetables; more importantly, there are no setting for any variety of fish. In fact, each of the four meat categories that are included has just two subcategories at most: beef brisket or prime rib; a whole chicken or just the wings; baby back ribs or pulled pork; or a whole turkey.

I decided beef would be the most foolproof food to start with, since eating a good cut of rare beef is less dangerous than consuming undercooked pork or poultry. I wasn't about to experiment with something as expensive as a prime rib, so I decided to give brisket a try. But then I discovered that my local grocery store doesn't stock brisket (I'd have to special order it, so the butcher suggested tri-tip as a substitute). I brought home a three-pound chunk, seasoned it with my favorite dry rub, and put it in the fridge overnight.

Char-Broil recommends wiping down the wire

Char-Broil Simple Smoker with SmartChef Technology

AT A GLANCE

The Simple Smoker does a great job and would have earned an even higher score if its app wasn't so poorly executed.

PROS

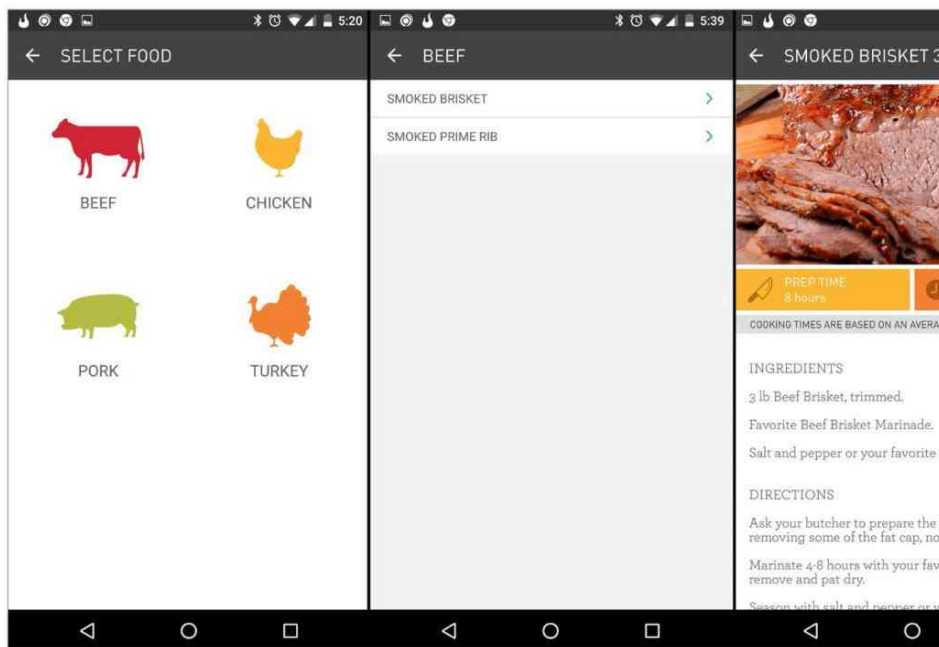
- Prepares exceptionally tasty meals
- Requires very little monitoring or user intervention
- Sends alert to your smartphone when your food is cooked

CONS

- Absolutely terrible smartphone app
- Far too few recipes, and none at all for fish or vegetables
- Difficult to clean

\$300





roaster basket and the removable cooking chamber it fits into with vegetable oil each time you cook to reduce the chances of the food sticking, which I did the next morning. I pulled the beef out of the refrigerator, inserted the six-inch temperature probe, placed the meat in the roaster basket, and put the basket inside the cooking chamber. I then selected the brisket recipe and indicated its weight: three pounds (my only other choices being two pounds or four pounds).

The four food groups: beef, pork, chicken, and turkey

The app has rudimentary recipes for the few cuts of meat it covers, including instructions for preparing the meat prior to cooking, and it suggested cooking the brisket to an internal temperature of 220 degrees Fahrenheit. The app reported that it would take six hours and

As you can see from these three screenshots, Char-Broil's app looks like an afterthought, even though it's integral to getting good results from the smoker.

27 minutes to bring that much brisket to that internal temperature. You can use the app to stop the smoker—and the smoker will automatically turn off when your food reaches its target temperature—but you must physically push a button on the smoker to start it. That’s a smart safety precaution that forces you to ensure that no one—especially kids—are lingering near the smoker unaware that it’s about to heat up.

I loaded the smoker box with a couple handfuls of mesquite chips, pressed the start button on the smoker, and then tapped the Add Chips button in the app. You can delay adding chips for as long as you want in order to minimize the smoke flavor, or you can use a different species of wood. Char-Broil’s skimpy user manual suggests hickory, oak, pecan, or mesquite for heavier flavor; or alder, maple, cherry, or apple for lighter flavor. Another time-saver: You don’t need to soak the chips before using them; in fact, Char-Broil recommends that you don’t soak them as that will only delay their smoking.

After 45 minutes, the app chimed to remind me to check on the status of the chips, about half of which had burned away. This sequence repeated every 45 minutes until the food was done. And it was done much sooner than I’d expected. Now I prefer my beef on the rare side, so I took advantage of the app’s Edit feature to change the probe’s target



You can hang shelves inside the roasting basket to smoke smaller cuts of meat.



The smoker box fits into the front of the smoker, lining up with two holes in the inner cooking chamber so the smoke can reach the meat. Note that the box can accommodate only wood chips, not chunks.

temperature from the 220 degrees suggested for brisket to 160 degrees for the tri-tip I was actually cooking. Since tri-tip is a denser cut of meat than brisket, I guessed that it would take close to the same 6.5 hours, but the beef reached my desired internal temperature in less than 3.5 hours—and by its appearance (inside and out), it was more cooked than I would have preferred.

But after I'd let the meat rest on the counter under a foil tent for 15 minutes, sliced off a piece, and bit into it, I thought I'd died and gone to heaven. It was the most tender, juicy, delectable piece of tri-tip I'd ever eaten, with an amazingly flavorful crust all around the outside. Just remembering it makes my mouth water.

After that experience, my wife and I decided to try turkey; but since the two of us can't polish off an entire bird, we bought a package consisting of a partial breast and two legs. The app doesn't take such portions into account, so we looked up the USDA-recommended internal temperature for turkey meat, stuck the probe into one of the legs, and used the pork-ribs setting. Although we had to monitor the temperature-probe readout carefully, the results were every bit as satisfying as they were for the beef.

Over a period of several weeks (we used the smoker only on weekends), we prepared fresh wild salmon steaks, baby back ribs, chicken wings, pork loin chops, and another tri-tip. We got outstanding results each time, despite having to make some educated guesses about how and how long to cook things. The temperature probe—always placed in the thickest part of the meat—was critical to our efforts in each case. You can use the app to adjust the food’s internal target temperature and the smoker’s cooking temperature (from 125 to 525 degrees Fahrenheit), but you can’t program its cooking time and the app doesn’t recalculate cooking times when you change the other parameters.

As a result, I found myself monitoring the app much more than I think should have been necessary. In addition to providing more recipes, it would be great if the app could be programmed to chime when interim temperatures are reached, so you’d know when it was time to start preparing side dishes. As it stands, it’s incumbent on you



You can barbecue a tri-tip much quicker, but you won’t get nearly as much flavor as when you smoke it. The meat off a grill won’t be nearly as juicy, either. (That’s not marinade; that juice didn’t appear until I cut into the meat.)



Traditionalists might grumble at the notion of using infrared heat from an electrical element, but I couldn't care less. The meat was fabulous. (Note: I removed the cooking chamber for this photo.)

to keep an eye on the app so you're not surprised when it chimes to inform you the meat is cooked.

The other components

The Simple Smoker consists of a barrel-shaped enclosure that's about 27 inches high, including its domed, hinged lid. A stainless-steel cooking chamber 11-inches in diameter sits inside of this, and a roaster basket big enough to cook a 16-pound turkey fits inside that. Two wire half-shelves can be hung inside the roaster basket (at staggered levels, if you choose) for smaller cuts of meat or whole chickens, and there's a second roaster basket that can sit on top. The top one is particularly well suited to cooking vegetables, since it's farther from the heating element.

Char-Broil's user manual issues a number of warnings about where the smoker should be located when in its use: Not under a roof, not under an eave, at least 24 inches from any wall or railing... It also discourages you from using an extension cord, a recommendation you might find difficult to follow given the smoker's short 5-foot power cord.

Finding the ideal outdoor location for the smoker could compromise its ability to reach your Wi-Fi network, too. Using Wi-Fi is superior to relying on Bluetooth, because your phone doesn't need to be near the smoker for the app to function. But both your phone and your smoker must be within range of your Wi-Fi network. My Wi-Fi access point is in the center of my home, and I have a lot of outdoor electrical outlets, so I was able to find a spot for the smoker on my back porch that was well within range of both my AP and an electrical outlet.

Cleanup and storage

Even if you follow Char-Broil's instructions and wipe the roaster basket and the walls of the removable cooking chamber with oil before each smoking session, the Simple Smoker can still be difficult to clean. A self-cleaning setting that super-heats the interior in an effort to turn the food residue into a crust that can be knocked loose with a stiff

This flimsy aluminum-foil grease tray is one of the more disappointing elements of the Simple Smoker's design. On the bright side, the drawer it fits inside is made of stronger stuff.



brush helps. On the one hand, the cleaning cycle is no more effective than what you get with the typical self-cleaning oven. On the other hand, I found the smoker easier to clean than my gas grill.

Char-Broil recommends covering the smoker if you plan to leave it outside, but it doesn't offer a purpose-built cover even as an added-cost accessory. Given that it's an electric appliance, I wouldn't advise leaving it out in the rain even it is covered. A pair of handles on either side make lifting the 31-pound appliance a little easier.

Is it really worth 300 (smoked) clams?

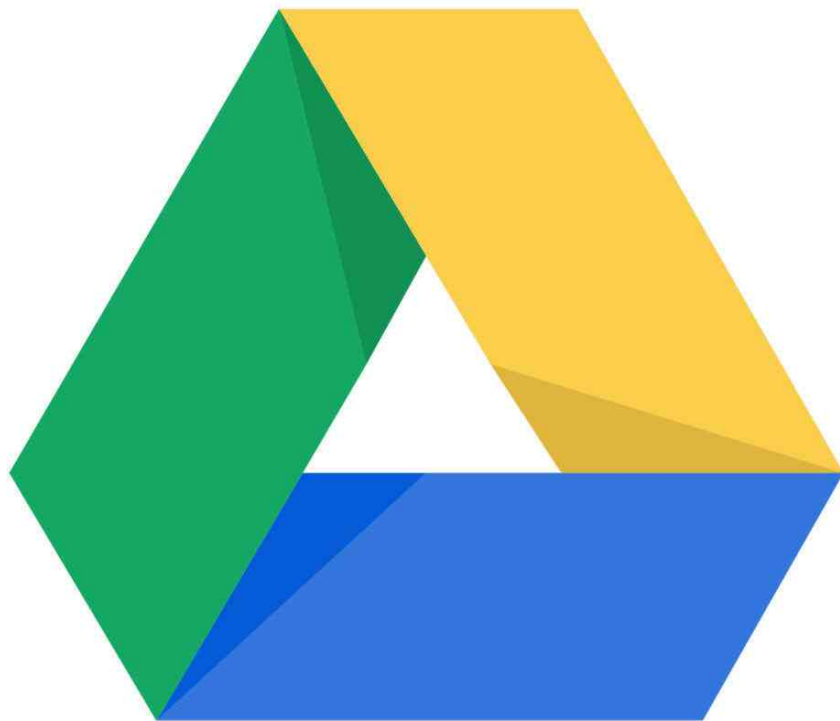
You can buy a relatively fancy grill for \$300, but I'd warrant that the food you cook on it wouldn't taste as good as what comes out of the Simple Smoker. I have a built-in, five-burner gas grill, and I honestly don't know how much use I'd get out of it if I also had one of these on my patio—except that the barbecue is under a roof with a powerful fan overhead, so I can grill rain or shine.

I would also guess that the smoker would last longer than a \$300 grill if properly cared for, since none of its components are exposed to a flame and most of its internals are fabricated from stainless steel. If you like the taste of smoked meats, and you can tolerate Char-Broil's crappy companion app, I recommend it. 🔌

You can buy a relatively fancy grill for \$300, but I'd warrant that the food you cook on it wouldn't taste as good as what comes out of the Simple Smoker.

5 COOL GOOGLE DRIVE FEATURES

YOU PROBABLY AREN'T USING—YET




Power up your productivity with drag-and-drop uploads, quick creation links, and more.

BY MICHAEL ANSALDO



Google Drive's austere interface can trick you into thinking what you see is all you get. But it's actually packed with powerful productivity features (go.pcworld.com/5drivetricks) that aren't immediately apparent (go.pcworld.com/5drivetips). And we've gone back to uncover even more. Here are five you probably aren't using, but should be.

OneNote for iPad	me	Jun 30, 2015	—
Docs Add-ons	me	Jun 22, 2015	—
Email managers	With 5 Gmail plug... active inbox	Jun 16, 2015	—
Sheets add-ons	me	Jun 16, 2015	—
Dropbox sync story	me	Jun 1, 2015	—
Google Drive add-ons	 Drop files to instantly upload them to: My Drive	May 26, 2015	—
Evernote typing column screenshots		May 19, 2015	—

DRAG-AND-DROP FILES

1

Normally when you want to upload a file to Google Drive, you go hit the big red New button, select File Upload, and then navigate the folders on your computer to grab the file you need.

Here's a simpler way: Just drag the file(s) from Windows Explorer or the MacOS Finder into your Google Drive file list. Google's drag-and-drop icon will appear and you'll see a progress bar showing you the upload status.

To quickly upload files to Drive, drag them into the file list.

BOOKMARK ‘QUICK CREATION’ LINKS

2

Here’s another shortcut, and one that doesn’t even require you to open Google Drive.

If you want to create a new word document, spreadsheet, or slideshow, you can do it from any browser window by using “quick creation” links. Drag the following links to your browser toolbar, and click the appropriate one whenever you want to start a new project:

Document: <https://docs.google.com/document/create>

Spreadsheet: <https://docs.google.com/spreadsheets/create>

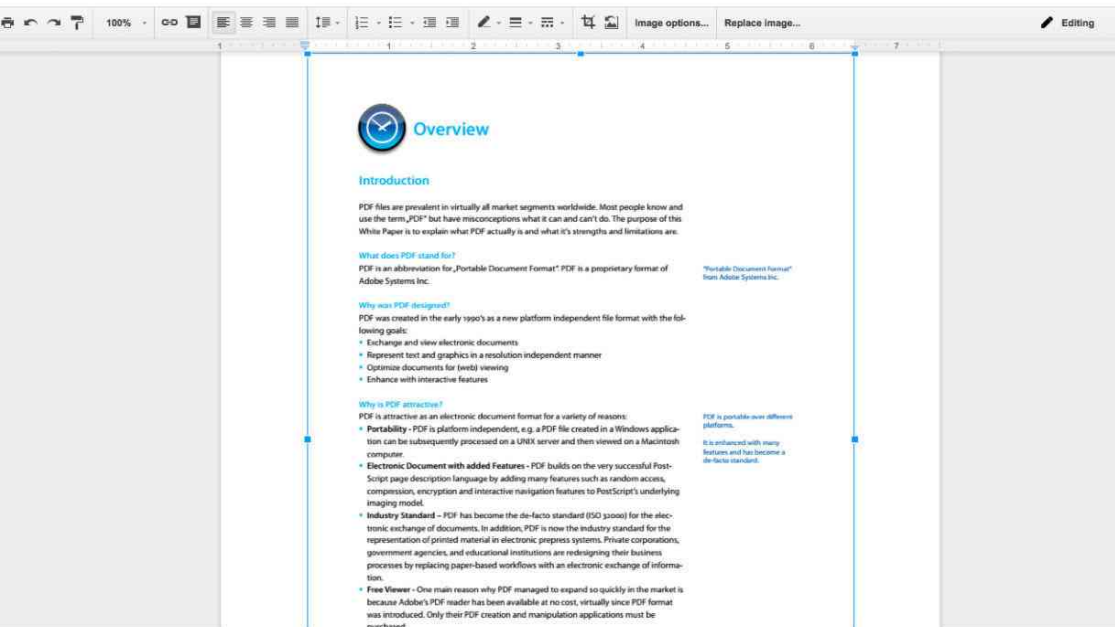
Presentation: <https://docs.google.com/presentation/create>

SEARCH BY SENDER

3

Google’s collaboration capabilities probably have you working on a number of shared documents at any given time. But it can be hard to keep tabs on who sent you which doc, and what spreadsheet you’re working on with whom. Scrolling through hundreds of documents in the Shared With Me folder isn’t an option when you’re in a hurry. At those times, type the collaborator’s name or email address in Drive’s search bar, and within seconds you’ll have a list of every document you’re collaborating on with that person.





CONVERT PDFS AND IMAGES INTO TEXT

4

While you're probably taking advantage of Drive to store all kinds of files, you may not be aware you can use its built-in OCR technology to convert non-text documents like images and PDFs into editable text.

Right-click on the file you want to convert and select Open With > Google Docs. A new browser tab will open with the image or PDF within a document surrounded by a blue border with the raw text beneath it. Resize the blue border to capture only the text you want, then use any of Docs' tools to edit and format it. When you're done, delete the original image/PDF from the tab and save the new text document.

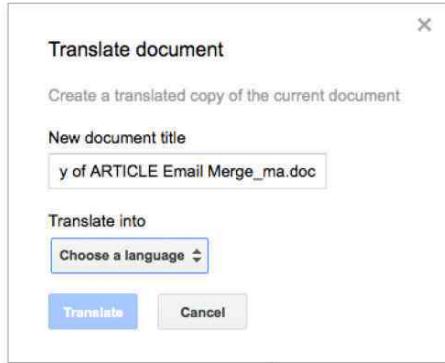
You can convert
a PDF into
editable text
just by opening
it as a Google
Doc.

TRANSLATE DOCUMENTS

5

Given the global nature of business today, you may find yourself occasionally working with documents written in another language. You could cut and paste the text into the Google Translate (translate.google.com) web tool. But a better way is to upload it to Google Drive where you can translate and save it as a new document in your preferred language.

Once the document is uploaded, right-click it and select Open With > Google Docs. Once it's open, go to the Tools menu and click Translate Document. Choose a language from the dozens of options in the drop-down menu, click the Translate button, and voilà! (That's French for "there you are.")



Drive can translate a document into dozens of languages.

You might know **Joshua**.
He loves video games, and he
owns enough to know they're not
all meant for kids. That's why he
reminds his friends (at least the
ones that have kids) that they all
have **big black letters on the box**
to help parents find the ones that
are best for their families.

You can learn about those
ratings at **ESRB.org**



Los Angeles, CA



ENTERTAINMENT SOFTWARE
RATING BOARD





You will upgrade to Windows 10:

Inside Microsoft's strong-arm upgrade tactics

The carrots alone didn't lure 1 billion users, so Microsoft's breaking out the sticks.

BY BRAD CHACOS

ILLUSTRATION BY CHI BIRMINGHAM



Windows 10's deep stash (go.pcworld.com/win10tips) of carrots (go.pcworld.com/win10features) lured a record-breaking number of users to the operating system when it launched. But now that adoption's slowing down, Microsoft's breaking out the sticks in its quest to shift 1 billion users (go.pcworld.com/1billionusers) to Windows 10 by July 2018.

Microsoft wielded the latest stick on January 15, when it declared that buyers of Intel's new Skylake processors have to upgrade to Windows 10 in the next 18 months, or forgo all but the most critical security patches—and those will be available to Windows 7 and 8.1 users only if said patches don't "risk the reliability or compatibility" on non-Skylake systems. Future processors from Intel, AMD, and Qualcomm will only be officially supported by Windows 10, not 7 or 8.

That's a bombshell, and the strike came without warning. Skylake processors have been available for months now, while Microsoft's long-term support for Windows has never been explicitly tied to specific CPU platforms. Making sure new hardware works with old operating systems no doubt consumes valuable time and resources, and hardware and software are intertwined now more than ever before, but aggressively forcing users, including businesses (go.pcworld.com/msbizupgrade), to upgrade to Windows 10 before the end of the operating system's initial stated support cycle ends is unprecedented in the Windows world.



This isn't the first stick Microsoft has brandished in its Windows 10 push. Nor will it be the last.

GET WINDOWS 10 NOW, OR NOW

Even if you aren't running a new Skylake PC, Microsoft's embraced malware-like tactics (go.pcworld.com/mstactics) to trick Windows 7 and 8 users into installing Windows 10. That sounds like hyperbole, but sadly, it isn't.

The root of the problem lies in the Get Windows 10 app (which I'll call GWX from here on), which was pushed via Windows Updates to all Windows 7 and Windows 8.1 PCs. GWX actually predates Windows 10 itself, as Microsoft used it to encourage early adopters to "preorder" the operating system to get first dibs in a staggered rollout. But as the months roll on and Windows 10's adoption slows, Microsoft's turned

A Surface Pro 3 running Windows 10.





to more annoying—and borderline deceitful—measures with GWX. What began as an innocuous invitation floating up from your system tray has evolved into a near–full-screen pop-up prompting you to upgrade.

Worse, GWX recently began using aggressive wording similar to the language malware authors employ to trick you into installing nastyware on your PC. When GWX pops up, you're given two options: Upgrade Now or Start Download, Upgrade Later.

There isn't any "No thanks, I don't want to download Windows 10" option to click. The only way to refuse Microsoft's offer is to click the X in the upper right corner of the (unprompted!) pop-up to shut it. And some people aren't even seeing the Upgrade Later option.

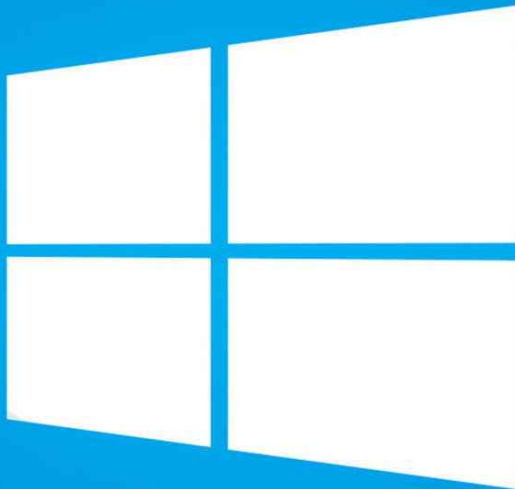
This reeks of malware—but it's not. And it's only going to accelerate later this year, when Microsoft pushes Windows 10 (go.pcworld.com/win10push) through as a Recommended update in Windows Update.

The only way to refuse Microsoft's offer is to click the X in the upper right corner of the (unprompted!) pop-up to shut it.

AN OFFER YOU CAN'T REFUSE

On February 1, Microsoft began to push through the initial Windows 10 installation as a Recommended update. That means Windows 10 will automatically (go.pcworld.com/win10auto) download itself onto any computer that has Windows Update configured to install Recommended updates by default—in other words, the overwhelming majority of consumer PCs in the wild. That's the default setting for new Windows installs, and the one that most tech experts (ourselves included) recommend that everyday people use.

That's just as aggressive as restricting new processors to Windows 10—perhaps even more so. Users hollered last year when a snafu on Microsoft's back end caused some PCs to install the Windows 10 upgrade automatically. And that was after Microsoft slipped 6GB (go.pcworld.com/win106gb) of initial Windows 10 installation files onto



the PCs of Windows 7 and 8 users, forcing one *PCWorld* reader to burn through most of her monthly data plan in mere days.

Fortunately, Windows 8.1 PCs won't automatically download updates over a metered connection. But Windows 7 users will have to turn off automatic downloads for all Recommended updates to avoid downloading multiple gigabytes' worth of operating system. And unless you're religious about manually installing critical updates, disabling Recommended updates will leave your computer vulnerable to some of the nastiest exploits floating around the web. Thanks, Microsoft.

The company says you'll be able to opt out of the upgrade even after Windows 10's installed to your PC, but smart

money's betting the prompt will use the same weasel words as the GWX pop-up. Hey geeks: Look forward to receiving frantic late-night phone calls from your friends and family after they accidentally kick off the install process.

Hey geeks: Look forward to receiving frantic late-night phone calls from your friends and family after they accidentally kick off the install process.

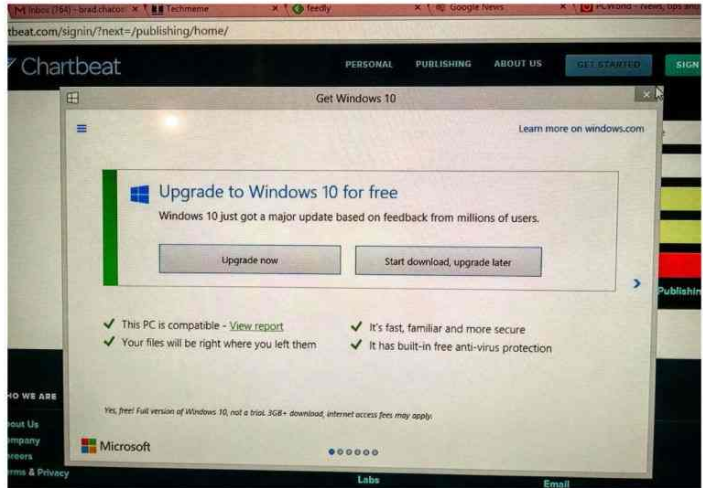
IT DOESN'T HAVE TO BE LIKE THIS

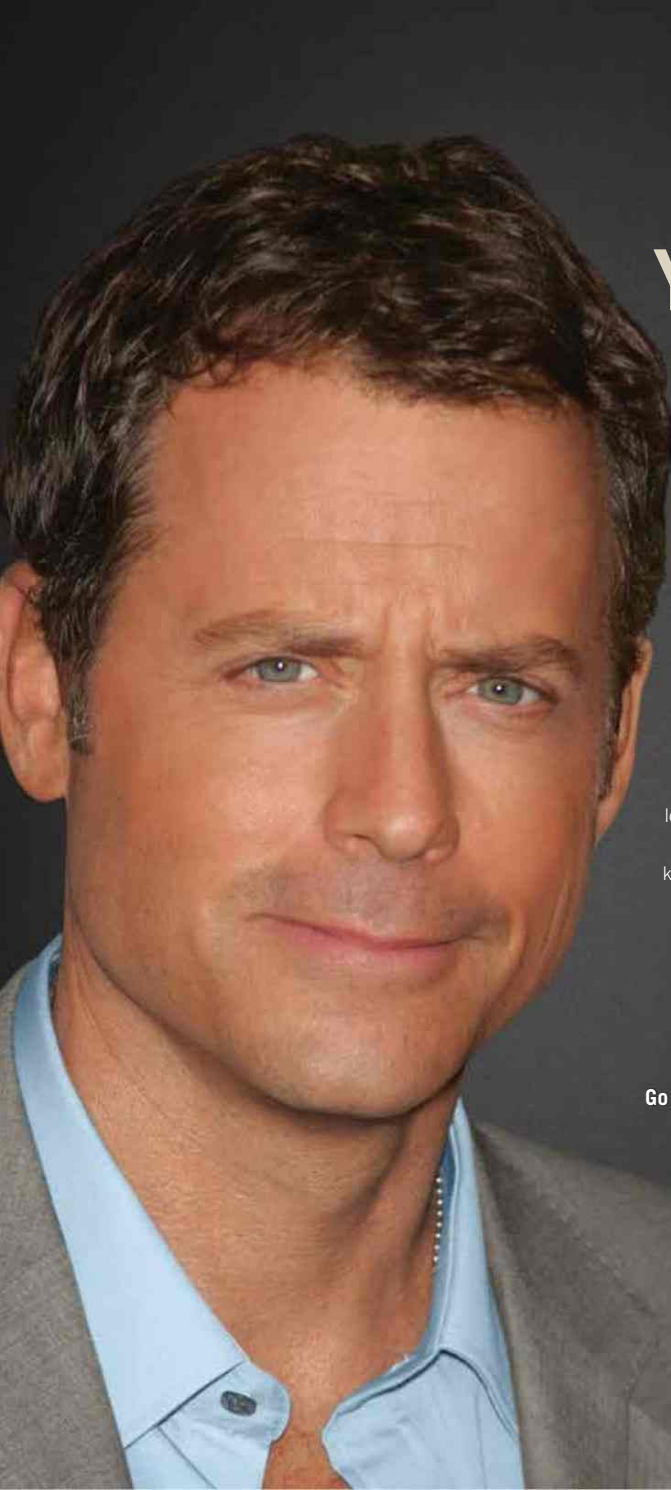
Here's the thing: There's actually a lot to love in Windows 10! It's our favorite (go.pcworld.com/favoritewindows) version of Windows yet, blending the best of Windows 7 and 8 while simultaneously eradicating Windows 8's worst sins. And new features like virtual desktops, the Action Center for notifications, and DirectX 12 are sure to make even enthusiasts and gamers smile from ear to ear.

Not everybody wants to upgrade to Windows 10, though. Some people lament the demise of Windows Media Center. Others worry about the operating system's deeper hooks into your personal data. Still more hate the idea of forced Windows Updates; and the fear of a free "operating system as a service" bombarding you with ads, upsells, and subscription services is a very real thing.

Microsoft has a lot riding on Windows 10, and it makes sense that the company wants to spread it as far and wide as possible. But in an era where Macs are a lone bright spot (go.pcworld.com/macsbrightspot) in the PC industry, iOS sales overtook Windows sales (go.pcworld.com/iOSSales) for the first time ever, and Linux-based Steam Machines are mounting a serious threat to one of the PC's remaining bastions—gaming—Microsoft might want to stop shaking an iron fist at happy Windows 7 and 8 users. By abandoning legacy support for software and hardware and all but shoving the operating system down peoples' throats, Microsoft runs the risk of angering its loyal user base, as well as tossing Windows' hard-earned reputation for consistency in the garbage.

And it just...feels...gross. 🛑





YOU ARE YOUR MOST POWERFUL ADVOCATE.

**MORE THAN EVER,
COLORECTAL CANCER
IS A PERSONAL MATTER.**

Today, colorectal cancer (CRC) is the second leading cause of cancer death in the United States,* but that may be changing. Research shows that knowing the genetic and molecular makeup of your colorectal tumor may lead to safer, more effective treatment, just for you. Make it personal. It's your tumor.

Talk to your doctor about testing your tumor.
Speak up. Ask questions.

Go to SU2C.org/colorectalancer to learn more.

Greg Kinnear, SU2C Ambassador



Lilly | ONCOLOGY

Stand Up To Cancer is a program of the Entertainment Industry Foundation, a 501(c)(3) charitable organization.

*According to the Centers for Disease Control and Prevention (CDC), colorectal cancer is the second leading cause of cancer death in the United States when men and women are combined.

HERE'S HOW

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Your PC's dead, but you may still be able to save its hard drive

The right adapter might let you recover your files.

BY LINCOLN SPECTOR

RAIZZA REYES ASKED ABOUT using a SATA/USB adapter to recover files from an unbootable PC.

The right adapter might let you recover your files, but there's no guarantee. A lot of it depends on the physical condition of the drive and the way your files are stored on it.

But first, a reprimand. If you backed up your files daily, you wouldn't have this problem. You could just restore the files from your backup. It really isn't difficult (go.pcworld.com/restorefiles).

Okay, let's get on with your problem.

A SATA/USB adapter temporarily turns an internal drive into an external one. You remove the drive from the computer, plug the SATA end of the adapter into your drive, and then plug the USB end into another computer. Windows—or whatever operating system the computer uses—should treat it like a flash drive or an external hard drive, allowing you to access the files and copy them elsewhere.

Unless your drive is the part of your PC that died. (You can test this beforehand by booting a live version of Linux [go.pcworld.com/livelinux] and seeing if you can access your files.) If your files remain inaccessible, you'll have to send the drive to a data recovery service.


Another possible problem: If you use something stronger than a Home edition of Windows, you might also run into a problem with Windows' own built-in encryption. The Encrypting File System (EFS, which encrypts selected files and folders) and Bitlocker (which encrypts whole partitions and drives) require a special key to decrypt on a computer other than your own. If you didn't save that key or don't remember where you put it, your files are gone for good.



That's why Microsoft doesn't make these tools available in the Home editions. It's also why I recommend (go.pcworld.com/3rdpartypw) using a third-party password-based encryption tool such as Veracrypt (veracrypt.codeplex.com).

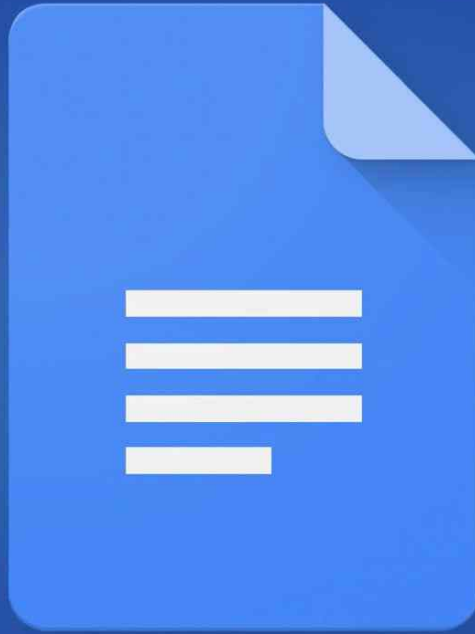
The good news is that if the drive is in good shape, and you haven't used Microsoft encryption, you will probably be able to recover your files.

One more suggestion: Instead of buying a SATA/USB adapter, buy a SATA/USB enclosure. An enclosure is basically an adapter in an enclosed box, turning the former internal drive into a full-fledged external one.

Then you can use that external drive for backup. That way, you won't have this problem again. 



AMAZON.COM



5 essential Google Docs and Sheets add-ons

BY MICHAEL ANSALDO

NOT ALL DOCUMENTS and spreadsheets are created equal. Some require finicky formatting, others have platform compatibility issues, and many are just plain long and unruly. When faced with these more problematic scenarios, add-ons (go.pcworld.com/gdocsaddons) for Google Docs and Sheets can be your greatest ally. Here are five that solve some common productivity challenges.

Consistency Checker

Those of us who work in publishing have the luxury of proofreaders. For everyone else, there is Consistency Checker (go.pcworld.com/

ConsistencyChecker). This add-on scans your document for inconsistent hyphenation (*email* and *e-mail*), spellings, and abbreviations. It also looks for numerals in the middle of sentences. Once errors are found, you correct them using Doc's Find And Replace feature.

Consistency Checker is ideal for contracts, reports, and other multipage documents where maintaining consistency is a challenge.

Translate

The globalization of business has made it common to interact with colleagues and customers all over the world.

Consistency Checker cleans up your document like an automated proofreader.



The screenshot shows the 'CONSISTENCY CHECKER' window, powered by PerfectIt. It displays 'SPELLING VARIATIONS' and lists words with two different spellings. The first variation is 'advisor' / 'adviser', with a list showing 'advisor' used 2 times and 'adviser' used 10 times. The second variation is 'judgment' / 'judgement'.

CONSISTENCY CHECKER
Powered by PerfectIt

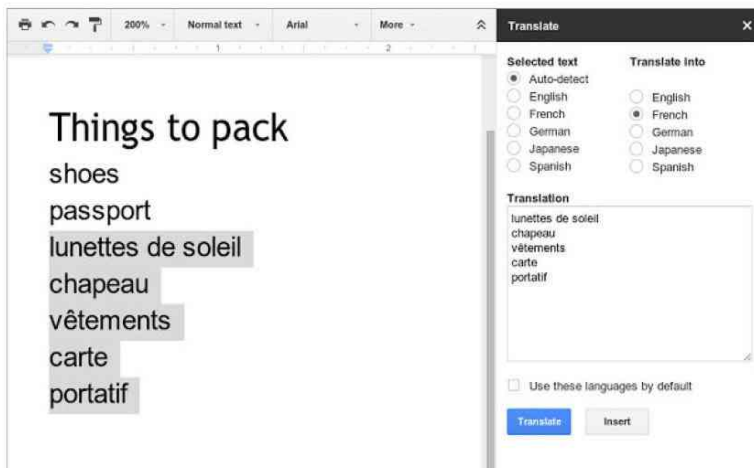
SPELLING VARIATIONS

The following words are spelled in two different ways:

'advisor' / 'adviser'

- advisor 2 times
- adviser 10 times

'judgment' / 'judgement'



The screenshot shows the 'Translate' window. On the left, a list of items to pack is shown: shoes, passport, lunettes de soleil, chapeau, vêtements, carte, and portatif. On the right, the 'Translate into' section shows 'French' selected. Below, the 'Translation' section shows the French equivalents: lunettes de soleil, chapeau, vêtements, carte, and portatif.

Things to pack

shoes
passport
lunettes de soleil
chapeau
vêtements
carte
portatif

Translate

Selected text

- ☒ Auto-detect
- ☐ English
- ☐ French
- ☐ German
- ☐ Japanese
- ☐ Spanish

Translate into

- ☐ English
- ☒ French
- ☐ German
- ☐ Japanese
- ☐ Spanish

Translation

lunettes de soleil
chapeau
vêtements
carte
portatif

☐ Use these languages by default

Translate **Insert**

Translate converts text into any of five languages right in the sidebar of your document.



For many, that also means frequently working with documents composed in another language.

While you could port the foreign text over to Google Translate, this add-on gets the job done without requiring you to leave the document. Just highlight the appropriate text and select from five languages: English, Spanish, French, German, or Japanese. Translate (go.pcworld.com/gtranslate) converts it right in the document sidebar and reinserts it into the document.

Take the heavy
lifting out of
blogging with
Google Docs To
WordPress.

Google Docs To WordPress


Google Docs To WordPress (go.pcworld.com/docstowp) streamlines the publishing process for the world's most popular blogging platform. Just open your finished Google document using this add-on and select Create Post. The app automatically formats the doc to conform to your blog's theme. It also uploads any included images, optimizing their size to fit the blog page. You're presented with an edited draft to make any corrections before you post.

Data Everywhere

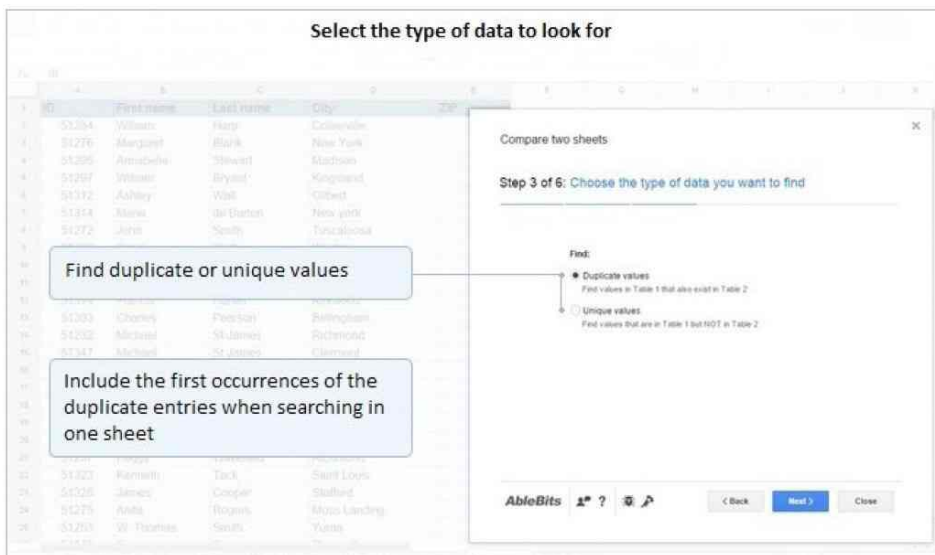
Even if your office is Google-fied, much of the rest of the business world still uses Microsoft Excel. Data Everywhere (dataeverywhere.com) eliminates the compatibility headaches that arise when you share a document between these two programs. The add-on connects an Excel spreadsheet to a Google Sheet, formatting the data for each respective platform. Data will automatically sync across connected sheets, so everyone can stay with the program they're most comfortable with.

Remove Duplicates

Combing a large spreadsheet for duplicates, even by using formulas, can be a recipe for madness. Fortunately, this add-on makes it unnecessary.

Remove Duplicates is actually two tools in one: the Find Duplicates Or Uniques option checks selected columns within a single sheet for unique or duplicate rows and includes their first occurrences in the search results. The Compare Columns Or Sheets tool compares columns across two sheets for unique or duplicate values. In either case, a wizard helps you purge dups within minutes without pulling your hair out. 

With Remove Duplicates, you can find and delete duplicate values from your spreadsheets.



Select the type of data to look for

Find duplicate or unique values





Include the first occurrences of the duplicate entries when searching in one sheet

Compare two sheets

Step 3 of 6: Choose the type of data you want to find

Find:

- ☒ Duplicate values
Find values in Table 1 that also exist in Table 2
- ☐ Unique values
Find values that are in Table 1 but NOT in Table 2

AbleBits    

< Back Next > Close

How to permanently delete games from Steam

BY NICK MEDIATI

GOT A GAME in your Steam library that you no longer play and just want gone? Maybe you bought something that turned out to be awful and you just don't want to see it ever again. No problem: You can now easily remove games from your Steam library for good.

The news comes via user "Enter the Dragon Punch" on the NeoGAF (go.pcworld.com/neogafcomment) forums, who came across the new permanent delete feature while visiting Steam's tech support section. The newfound ability to permanently delete a game is a vast improvement on the old state of affairs, as PCGamer notes (go.pcworld.com/steampcgame), which required you to get in touch with Steam's support team.






How to permanently remove games from your library

Here's how to do the deed. Visit the Steam support site (go.pcworld.com/steamsupport), then log in with your account information. Click Games, Software, and so forth, then select the game you want to delete (you may need to search for it). Next, select "I want to permanently remove this game from my account." Follow the prompts, and the game will be removed from your Steam library for good.

Alternately, you can open the Steam client on your PC and then select a game from the library while in Details view (if in Icon view, click Details). Select Support from the Links column located along the right-hand side, then click "I want to permanently remove this game from my account."

Steam advises that you uninstall the game you want to delete from within the Steam app before removing it from your account: If you don't, you'll have find the game on your hard drive and uninstall it manually. With that in mind, the first removal option is probably your best bet.

There are some catches, though: As PCGamer points out (go.pcworld.com/pcgamersteamdelete), you can't use this method to delete bundle items you unlocked using a single product key. Still, it's a small price to pay for being able to manage your account more effectively. 

Click the option

"I want to permanently remove this game from my account" and follow the onscreen instructions to permanently remove a game from your Steam account.



PEACE CORPS **RESPONSE**

3-12 MONTHS CAN MAKE A
LIFETIME OF DIFFERENCE

Peace Corps now offers short-term Volunteer assignments overseas for 3 months to 1 year for especially skilled professionals with at least 10 years experience.

Browse the opportunities on our website and register to receive alerts when new postings become available.



Try deep linking, a powerful way to customize Windows 10's Start menu

YOU HAVEN'T CUSTOMIZED the bejesus out of Windows 10's Start menu unless you've done deep linking. Sure, you've rearranged the left side (go.pcworld.com/win10left) of Windows 10's Start menu, gotten your tiles just the way you like them on the right (go.pcworld.com/win10right), and even added some website shortcuts (go.pcworld.com/win10website) to the mix. But with deep linking, you can pin specific pages from within a Windows Store app to your Start menu.

Say you're reading an ebook with the Kindle for Windows 10 app. You can pin the book itself to your Start menu instead of the entire Kindle

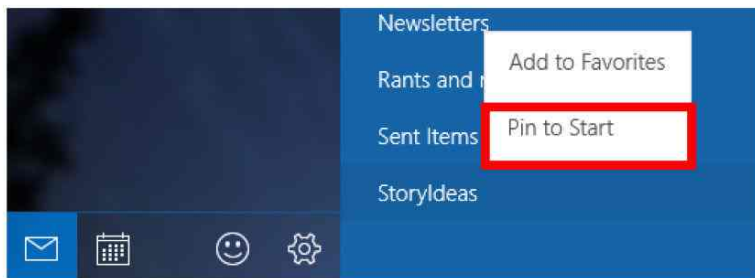
app. That way you can always jump right back into your book even if the last time you closed the Kindle app you were looking at something else. Pretty cool, right?

Here are a few more examples of how you can use deep linking to practical use.

Note: Deep linking is only designed to work with Windows Store apps (versus traditional desktop apps), but not all of them support the feature.

Mail folders

If you need quick access to a specific mail folder, such as an alias on Outlook.com, Windows 10's built-in mail client can help. Open the app, right-click the folder you'd like to add to your Start menu, and select Pin To Start.

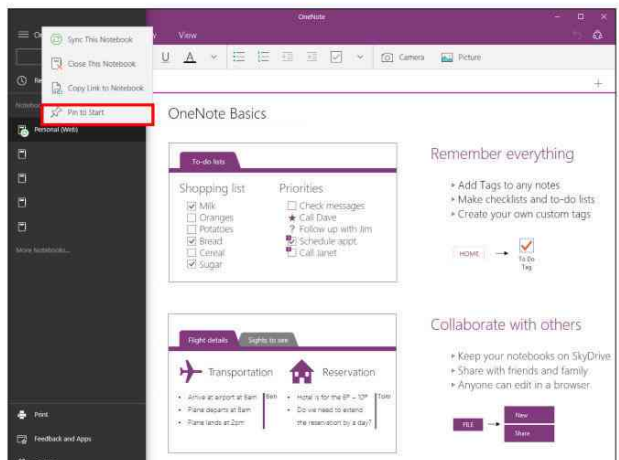


Keep one or more mail folders close at hand.

OneNote

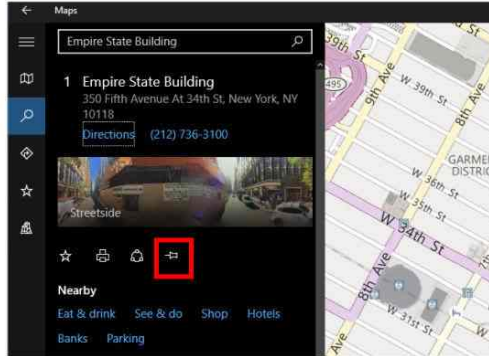
Using the Windows Store version of OneNote, you can pin all kinds of things to the Start menu, such as an entire notebook, a specific section, or an individual page. Right-click whatever it is you want to pin, and select Pin To Start.

Pin a frequently used OneNote folder to the Start menu.



Maps

Planning a trip or going somewhere new in town? You can pin a specific location you search for in the map app. Look for the thumbtack icon in the search results to pin a location to Start.




Search results from Maps?
Yes, pinnable.

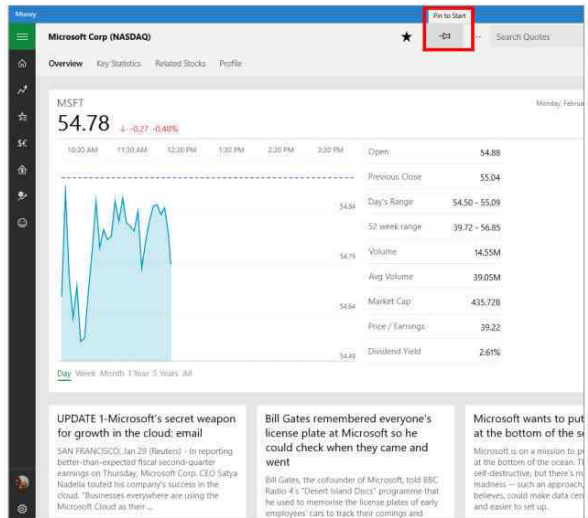
Music

Groove Music allows you to pin albums, playlists, radio stations, and songs to the Start menu. Even better, once you click on that tile, it will start playing automatically when the app opens. Right-click on content within Groove to find the Pin To Start option.

Money

Following stock prices and news for a specific company gets a lot easier when you have a live tile on your Start menu keeping you up to date. Look for the thumbtack icon inside the Money app's search results.

These are five examples of how you can use deep linking to keep important information just a tap or mouse-click away on your Start screen. Now if only Microsoft would activate deep linking for the Solitaire app (go.pcworld.com/solitaireapp). 



Keep a close eye on a company's stock price via a Start menu live tile.



**“ SURE,
AT FIRST I WAS A LITTLE TAKEN ABACK
BY THE WHOLE PEEING STANDING UP THING.
BUT I TAUGHT HIM TO THROW A STICK
AND NOW HANGING OUT WITH HIM
IS THE BEST PART OF MY DAY.”**

**— EINSTEIN
adopted 12-09-10**

**A PERSON
IS THE BEST
THING TO HAPPEN
TO A SHELTER PET**



adopt

theshelterpetproject.org





What to do when a power outage or surge damages your PC

You may be able to revive the PC, or at least retrieve any files stored on it.

Sharon Hanan wants to know what to do about her husband's PC. A power outage left it unusable.

Electricity doesn't always behave itself. Sometimes a power surge can fry a piece of your computer, rendering it useless. A surge protector significantly reduces the risk, but it's still a possibility. And yes, a power outage often ends with a power surge.



Should an electrical disaster leave your PC useless, you'll want to protect your data, and then figure out what's damaged. It's easier and cheaper to replace a power supply than a whole computer.

If you don't have a backup of your data

(and you should [go.pcworld.com/easybackups]),

recovering your library files is your first priority. See my instructions on recovering files (go.pcworld.com/recoverfiles) from a dead PC (you can probably skip the part about Safe Mode).

Once you have your files back (assuming the disaster didn't ruin your hard drive or SSD—more on that later), you need to figure out which part of your PC is fried. You can get a good idea by how it fails to boot.

If the PC doesn't turn on at all—no lights, no sounds—the problem might be the motherboard (more on that later, too), but it's probably the power supply. If you have a tower PC, that's a reasonably inexpensive and easy replacement. You can buy power supplies anywhere and likely swap them out yourself.

That's not the case with a laptop. Unless you're extremely skilled at this sort of thing, I'd recommend taking it to a professional.


If your PC turns on, then turns off again, it's probably the motherboard. But there's also a slight possibility that the information in the CMOS has been scrambled. To find out, find the small, coin-like battery on the motherboard. Remove it, wait five minutes, insert it again, and reboot. You may be in luck.

But if that doesn't solve the problem, it's your motherboard. In that case, you should probably buy a new computer. A new motherboard effectively gives you a new computer anyway.



Power supply

If you really want your old computer back, you might recover it with a motherboard identical to the original. David Milman of computer repair company Rescuecom (rescuecom.com) told me, “we can [often] find replacement motherboards on eBay for under \$100.00, and putting them in usually takes between 1-2 hours.”

If your PC boots to the BIOS screen, or an error message, or just a blinking cursor, the damage is probably to your internal hard drive or SSD. (You may have already discovered this when you tried to restore your data files.) You can replace the drive relatively easily. The hard part, if you don’t have an image backup, is reinstalling your operating system and programs, and recovering your data files. You’ll probably have to send the drive to a data recovery service and hope for the best. 



*Have a tech question? Ask PCWorld Contributing Editor Lincoln Spector.
Send your query to answer@pcworld.com*

Tech Spotlight

A video showcase of
the latest trends



Watch the
video at
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How to **properly clean and sanitize your smartphone**

» Do you have any idea how gross your phone is? Back in 2011, it was discovered that 92 percent of phones have residual bacteria living on them. It sounds frightening, but it's reality. And frankly, I'm embarrassed to admit that my phone is usually covered in nasty finger grease. Here are a few tips on how to clean your smartphone when it starts looking a little grimy.

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